THE JOURNAL

of the American Medical Association

Published Under the Auspices of the Board of Trustees

L. 159, NO. 7 CHICAGO, ILLINOIS OCTOBER 15, 195

Acc. Date

COPYRIGHT, 1955, BY AMERICAN MEDICAL ASSOCIATION

TREATMENT OF CORONARY THROMBOSIS WITH MYOCARDIAL INFARCTION

J. Edwin Wood Jr., M.D., Julian R. Beckwith, M.D.
and
James L. Camp III, M.D., Charlottesville, Va.

Forty-two years ago Dr. J. B. Herrick devoted approximately one minute to treatment in his well-known treatise on sudden coronary artery obstruction,[1] quoted in part here: "If these cases are recognized, the importance of absolute rest in bed for several days is clear. It would seem wiser to use digitalis, strophanthus, or their congeners than to follow routine practice of giving nitroglycerine or allied drugs. The hope for the damaged myocardium lies in the direction of securing a supply of blood through friendly neighboring vessels so as to restore so far as possible its functional integrity." Today, in spite of prolonged and detailed discussions of therapy, myocardial infarction cannot be consistently prevented, and we must still perforce limit our remarks largely to the management of exigent situations arising in its clinical course. This summary statement of therapy of myocardial infarction in the space allotted must be curtailed of necessity, and we will make no attempt to review the many efforts devoted to the etiology and prevention of coronary disease.

To evaluate therapy, some estimation of the severity or extent of the myocardial infarction must be kept in mind. Admittedly, even the smallest and apparently most benign infarction may be in some cases difficult to classify because of its vagaries second to no known disease. Statistically, however, the poor-risk and the good-risk patients can be separated. Two [2] to three [3] days after infarction, the poor-risk patient has been found to have one or more of the following conditions: history of a previous infarction; presence of intractable pain; severe continuing shock; presence of congestive heart failure; occurrence of an arrhythmia, such as auricular paroxysmal tachycardia, auricular fibrillation, auricular flutter, frequent ventricular ectopic beats from more than one focus, ventricular tachycardia, and heart block; history or presence of thromboembolic phenomena; and a greatly enlarged heart. The good-risk patient does not have any of these conditions. As stated, the vagaries and treachery of the disease do not permit exactitude of classification, but a reasonably large study [3] indicates a mortality of 3.4% and a thromboembolism incidence of 1.3% in the good-risk group as contrasted with a mortality of 60% and a thromboembolism incidence of 11.5% in the poor-risk group. Obviously, any argument for or against a given therapy must be brought in line with some such evaluation.

GENERAL CONSIDERATIONS

Before discussion of special features of treatment such as management of shock, anticoagulants, and armchair rest versus strict bed rest, a few already well reviewed axioms may be summarized briefly. Pain must be relieved as promptly as possible. As far as we know, no better drug is available for this purpose than morphine. Meperidine (Demerol) has been recommended, but the analgesic effects of this drug are limited, making it of value only in the milder pain episodes, generally after the first or second day. It is important to remember the anticholinergic effects of the drug and the consequent suppression of the bladder reflex in older men. Occasionally, methadone causes less nausea and vomiting than morphine, but it does not carry the pain-controlling power of morphine. Atropine will not uncommonly relieve pain after full dosage of morphine has apparently failed. This is true when the heart rate is quite slow. Oxygen should be given for dyspnea, cyanosis, shock, or poor pain control, but, after a day or two, in the absence of these signs, it may be annoying to the patient and of no added value. If used under the correct indications it is valuable. When unnecessarily administered it can be a nuisance and a psychological hazard. No rigid rules need be laid down for diet. In the first

---

From the Cardiovascular Division, Department of Internal Medicine, University of Virginia.

Read before the Eighth Clinical Meeting of the American Medical Association, Miami, Fla., Dec. 1, 1954.

[1] Herrick, J. B.: Clinical Features of Sudden Obstruction of the Coronary Arteries, J. A. M. A. **59**: 2025 (Dec. 7) 1912.

[2] Russek, H. I., and Zohman, B. L.: Chances for Survival in Acute Myocardial Infarction: Survey of the Acute Phase in 1,318 Patients, J. A. M. A. **156**: 765 (Oct. 23) 1954.

[3] Beckwith, J. R.; Kernodle, D. T.; LeHew, A. E., and Wood, J. E., Jr.: The Management of Myocardial Infarction with Particular Reference to the Chair Treatment, Ann. Int. Med. **41**: 1189 (Dec.) 1954.

few days, liquids and a little toast or zwieback to allay gaseous distention may be all that should be given to ill patients. In good-risk patients and in poor-risk patients who are improving, a low-salt diet of simple foods ranging from 1,000 to 1,400 calories, depending upon the patient and his weight, is advisable over heavier diets. Fluid intake and method of fluid administration depend upon such factors as vomiting, sweating, temperature, and renal function. As a rule, little is gained by a daily fluid intake of over 3,000 cc., and generally 2,000 to 2,500 cc. will suffice. Liquids should not be iced. It goes without saying that heavy liquid petrolatum (mineral oil) and occasional small enemas should be used to make colic elimination as effortless as possible. The commode should replace the bedpan unless shock or debilitation of the patient prevents his using it.

TABLE 1.—*Mortality in Good and Poor-Risk Patients with Myocardial Infarction Treated by the Chair (Up) or Strict Bed Rest (Down) Methods*

	Good Risk	Mortality		Poor Risk	Mortality		Total	Mortality	
		No.	%		No.	%		No.	%
Up	20	1	5.0	19	2	10.6	39	3	7.7
Down	22	2	9.1	19	4	21.0	41	6	14.7

STRICT BED REST VERSUS CHAIR AND BED REST

Our experience with the chair and bed rest method of management has been salutary and in accord with that of others.[4] We have recently [3] extended these observations to include any differences produced by this method in both the good-risk and poor-risk patients. Table 1 indicates no greater mortality, in fact less, in patients treated with chair rest than in patients on a regimen of strict bed rest. The psychological benefits were obvious in the group allowed to sit up. Observations in table 1 were derived from a study of 80 consecutive hospital admissions classified either as good or poor-risk patients, as stated above. Of the total number of patients (39) allowed to sit up, none were in the 30-39 year age group, 9 were in the 40-49 year age group, 10 were in the 50-59 year age group, 14 were in the 60-69 year age group, 4 were in the 70-79 year age group, and 2 were in the 80-89 year age group. Of the total number of patients (41) treated by strict bed rest, 2 were in the 30-39 year age group, 9 were in the 40-49 year age group, 8 were in the 50-59 year age group, 16 were in the 60-69 year age group, 5 were in the 70-79 year age group, and one was in the 80-89 year age group. The patients who were allowed to sit up were helped or lifted into the chair from the second to the fifth day after infarction, and ambulation was not allowed at any time. Final evaluation of mortality and incidence of such conditions as thromboembolism and arrhythmia, as attributed to either the bed or chair methods, have not been correlated, but this study has uncovered no glaring contraindication to the chair method, and it appears that a large majority of patients with myocardial infarction can be so treated. As a matter of interest we have recently calculated "cardiac work" in patients with myocardial infarction and in other patients in the reclining and sitting position (table 2). The Starr [5] formula was used to estimate stroke volume and the formula suggested by White [6] was used as an estimate for cardiac work. In all but two patients, cardiac work was less in the sitting position; in these two the differences were not significant. More exact studies by Coe,[7] with precise laboratory methods, indicate less cardiac work in the sitting position.

SHOCK

Shock complicating myocardial infarction has been correlated with a fatality rate of 80% or greater.[8] Sampson and Zipser [9] indicate that this rate may be substantially reduced with suitable methods to combat shock, particularly with continuous administration of arterenol by intravenous drip. Here again the survival rate must be influenced to some extent by the nature and degree of the shock. Selzer's [10] realistic approach to this problem and his clinical classification of shock associated with myocardial infarction are clinically recognizable and represent a point of departure for the estimation of therapeutic results. He divides shock in myocardial infarction into four types: type 1, early shock with recovery; type 2, early shock, persistent, with fatal outcome; type 3, shock associated with cardiac arrhythmias; and type 4, late shock with gradual onset and generally fatal outcome. The clinical course of the patient illustrated in figure 1 offers several examples of both type 1 and type 3 shock. This patient had episodes of shock, with recovery after morphine and oxygen, with spontaneous recovery, with recovery from shock following the occurrence and control of arrhythmia, and with prevention of shock by continuous arterenol drip. It is probable that this very ill patient would have survived without arterenol. A decision to use or not to use a pressor amine in borderline shock in a patient with de-

TABLE 2.—*Estimate of Cardiac Work in Lying (Down) and Sitting (Up) Positions*

Case No.	Age	Sex	Diagnosis	Cardiac Work, Kg. Meters/Sec.	
				Down	Up
1	48	M	3 wk. after myocardial infarction	3.27	3.53
2	48	M	4 mo. after myocardial infarction	4.63	4.14
3	72	M	3 wk. after myocardial infarction	2.91	3.11
4	67	M	4 wk. after myocardial infarction	3.76	3.75
5	60	M	2 wk. after myocardial infarction	3.05	2.69
6	52	M	4 mo. after myocardial infarction	3.13	3.31
7	54	M	2 mo. after myocardial infarction	5.75	4.54
8	62	M	3 mo. after myocardial infarction	8.10	7.02
9	60	F	Coronary sclerosis, anginal syndrome	5.20	5.14
10	66	M	Thrombophlebitis	3.95	3.71
11	60	F	No disease	3.38	2.87
12	65	F	Agitated depression	8.25	8.04

* Starr formula for stroke volume. White formula for cardiac work.

---

[4] Levine, S. A., and Lown, B.: "Armchair" Treatment of Acute Coronary Thrombosis, J. A. M. A. **148**: 1365 (April 19) 1952. Mitchell, A. M.; Dealy, J. B.; Lown, B., and Levine, S. A.: Further Observations on the Armchair Treatment of Acute Myocardial Infarction, ibid. **155**: 810 (June 26) 1954.

[5] Starr, I.: Clinical Tests of the Simple Method of Estimating Cardiac Stroke Volume from Blood Pressure and Age, Circulation **9**: 664 (May) 1954.

[6] White, P. D.: Heart Disease, ed. 4, New York, the Macmillan Company, 1951.

[7] Coe, W. S.: Cardiac Work and the Chair Treatment of Acute Coronary Thrombosis, Ann. Int. Med. **40**: 42 (Jan.) 1954.

[8] Hellerstein, H. K.; Brofman, B. L., and Caskey, W. H.: Shock Accompanying Myocardial Infarction: Treatment with Pressor Amines, Am. Heart J. **44**:407 (Sept.) 1952.

[9] Sampson, J. J., and Zipser, A.: Norepinephrine in Shock Following Myocardial Infarction. Influence upon Survival Rate and Renal Function, Circulation **9**: 38 (Jan.) 1954.

[10] Selzer, A.: The Hypotensive State Following Acute Myocardial Infarction: I. Clinical Observations, Am. Heart J. **44**: 1 (July) 1952.

batable blood pressure levels may be reached by determining the amount of urinary flow. Oliguria indicates the necessity for relief of the shock-like state. Disappearance of shock after relief of bradycardia with atropine is graphically illustrated in figure 2. Apparent relief of shock by intravenous transfusion of plasma is illustrated in figure 3. The advantage of arterial transfusion in myocardial shock has not been established. Although it is advisable to administer digitalis whenever congestive failure occurs, as it does often with shock, we have not observed any dramatic change in blood pressure after digitalis therapy alone except after correction of arrhythmia.

In summary, depending on the nature of the shock, therapy may be carried out frequently in this order: relief of pain by morphine and oxygen; administration of atropine for bradycardia; plasma or blood transfusion for collapsed veins; digitalis for congestion; correction of arrhythmia with quinidine, as in auricular fibrillation, paroxysmal tachycardia, or ventricular tachycardia; phenylephrine (Neo-Synephrine) given subcutaneously or intramuscularly as an early measure; and arterenol by intravenous drip for persisting shock. Arterenol administered in 5% glucose solution, generally 4 mcg. per cubic centimeter at 10 to 40 drops per minute, should be withdrawn gradually. Blood pressure depression after sudden withdrawal may be profound. Above all, treatment must be carried out promptly, and, if early measures fail, therapy with arterenol by intravenous drip should be instituted within an hour after onset of severe shock with oliguria.

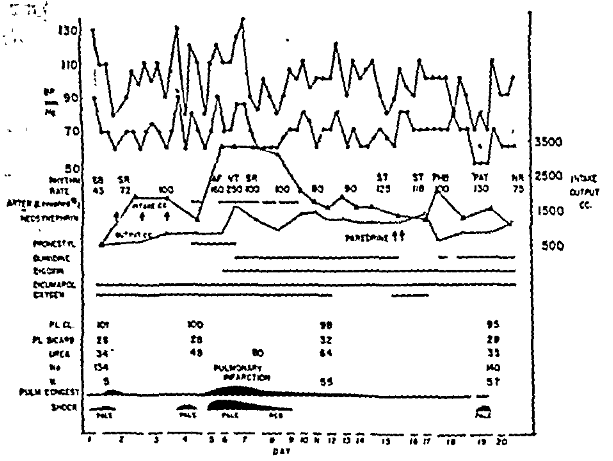


Fig. 1.—Course of patient with eight episodes of sudden blood pressure depression below 90 mm. Hg systolic and three episodes below 80 mm. Hg systolic. Spontaneous recovery apparently followed control of arrhythmia once and correction by arterenol several times. The patient survived and is convalescing at home two months later. AF=auricular fibrillation; VT=ventricular tachycardia; PAT=paroxysmal auricular tachycardia with ectopic focus and sudden onset and offset in spite of slow rate.

ANTICOAGULANT THERAPY

There is no unanimity of opinion as to which patients should receive anticoagulant therapy. It has been recommended that essentially all should receive it,[11] but contrary opinion to this is held.[12] Probably every poor-risk hospitalized patient with myocardial infarction should receive anticoagulant therapy; however, the benefit to be derived from anticoagulants in the good-risk cases is not great, owing to the relatively low mortality and quite low thromboembolic incidence already quoted above. Certainly, when accurate laboratory facilities are lacking for measurement of prothrombin time, it is vastly better to treat good-risk patients by the bed and chair method than to subject them to the hazard of induced hemorrhagic events.

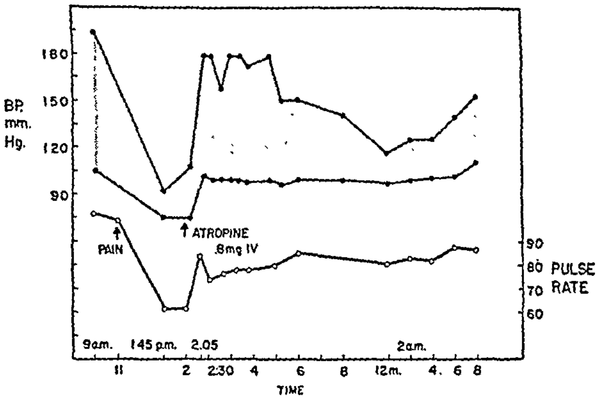


Fig. 2.—Relief of bradycardia and shock after therapy with atropine given intravenously to 49-year-old woman.

The choice of anticoagulants varies. The relative inexpensiveness, the single daily dose, and the wider experience with bishydroxycoumarin (Dicumarol) has made it universally more popular. Recently, phenindione (Hedulin and Danilone) has appeared to offer certain advantages. It produces a therapeutic level of suitably reduced prothrombin time in one to two days[13] as compared to two to four days [13] for bishydroxycoumarin.

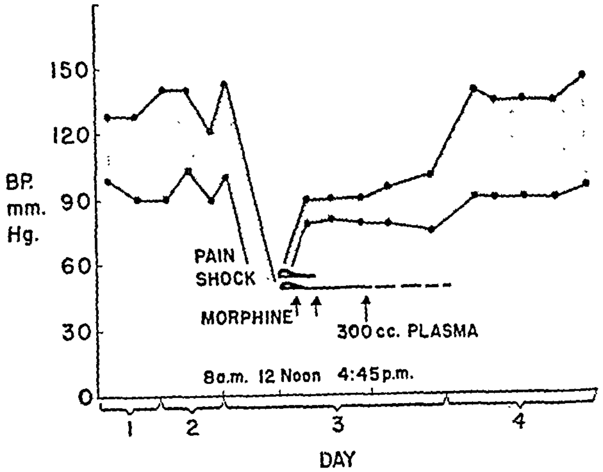


Fig. 3.—Partial recovery from shock, with relief of pain and more rapid rise of blood pressure after intravenous transfusion of plasma, in 59-year-old white man.

Also, phenindione has the advantage of producing a more rapid return to a normal level in the event of undue prolongation of prothrombin time or hemorrhage (two

---

11. Wright, I. S.; Marple, C. D., and Beck, D. F.: Myocardial Infarction: Its Clinical Manifestations and Treatment with Anticoagulants: A Study of 1,031 Cases, New York, Grune & Stratton, Inc., 1954.

12. Russek, H. I., and Zohman, B. L.: Selection of Patients for Anticoagulant Therapy in Acute Myocardial Infarction, Am. J. M. Sc. **228**: 133 (Aug.) 1954. Schnur, S.: The Current Dispute Concerning Anticoagulants in Acute Myocardial Infarction, J. A. M. A. **156**: 1127 (Nov. 20) 1954.

13. Sawyer, C. G., and Roberts, F. M.: The Challenge of Intravascular Clotting, North Carolina M. J. **15**: 53 (Feb.) 1954.

days or less as compared to an average of five days for bishydroxycoumarin).[13] A single injection of 5 to 10 mg. per kilogram of body weight of vitamin K emulsion restores prothrombin to a near normal range in three hours.[14] We have found phenindione inexpensive and relatively easy to manage with a reasonably constant daily dose. Generally, 100 mg. given orally, twice during the first 24 hours, followed by 50 to 75 mg. twice daily, will produce a therapeutic prothrombin level. Individual variation of course occurs, and a smaller maintenance dosage is sometimes necessary. Liver disease or congestion is always important in considering the dosage of anticoagulants of this type, as are old age and renal insufficiency.

Anticoagulants are, of course, contraindicated in patients prone to bleeding episodes, peptic ulcers, blood dyscrasias with hemorrhagic tendencies, tumors of the gastrointestinal or genitourinary tract, and vitamin K or vitamin C deficiencies. In acute coronary thrombosis with myocardial infarction, unless complicated by additional closure or extension, 21 to 42 days should be a sufficient period for anticoagulant therapy, depending upon the individual patient. The indefinite prolongation of anticoagulant therapy as a preventive measure against future coronary thrombosis [11] is not within the scope of this discussion.

CONGESTIVE FAILURE AND CARDIAC ARRHYTHMIAS

Digitalis should be given in most instances of definite congestive failure with dyspnea, increasing lung moisture, and filling neck veins. There are many patients with myocardial infarction who exhibit basal pulmonary rales early in the illness but whose congestion clears up promptly without medication and with no evidence of progression. There are even a few with mild congestion whose cases are controlled by one or two injections of 1 to 2 cc. of mercaptomerin (Thiomerin). In general, it is better to start digitalis therapy early than late. For rapid digitalization 0.8 mg. of lanatoside C given intravenously and followed in four hours by a similar dose is suitable for emergencies of an acute congestive nature. Digoxin is preferred for oral administration, owing to its rapid excretion rate, allowing relatively prompt escape from toxic symptoms should they occur. Although previous fear of digitalis preparations in myocardial infarction is unjustified,[15] it must be emphasized that digitalis intoxication in patients with myocardial infarction is hazardous and unwise. Noteworthy are the relative tendencies to digitalis intoxication in older persons and the enhanced digitalis effect with potassium deficiency that may sometimes arise from vomiting and lack of food intake in these ill people.[16]

Control of arrhythmias is a matter of constant vigilance and prompt action. The routine use of quinidine does not seem advisable owing to various unfavorable effects, including depression of myocardial function; however, with the development of ventricular premature beats, ventricular tachycardia, or paroxysmal tachycardia, immediate and continued preventive therapy is indicated. In auricular flutter and fibrillation, digitalization should precede the use of quinidine to restore normal rhythm. Control of ventricular tachycardia by either quinidine or procainamide hydrochloride is a matter of trial. In the patient in figure 3, 250 mg. of procainamide hydrochloride, given intramuscularly every four hours, appeared to control ventricular ectopic beats and ventricular tachycardia but was subsequently of little aid against auricular fibrillation and paroxysmal tachycardia. Procainamide hydrochloride is effective in ventricular premature contractions in doses of 250 to 500 mg. given orally every four to six hours. Quinidine is by far the drug of choice in supraventricular arrhythmias and often may be superior in ventricular tachycardia as well.

The development of high grades of atrioventricular block with posterior infarction is an unwelcome and unfavorable state. Occasionally use of ephedrine is justified in breaking up repeated episodes of Adams-Stokes syndrome, but the dreaded sequence of complete heart block with temporary ventricular asystole followed by ventricular tachycardia is a triad of events resistant to any therapy, unless it occasionally responds to atropine. Fortunately, a few patients with marked bradycardia and lesser grades of atrioventricular block respond to the proper use of this drug.

SUMMARY

The management of coronary thrombosis with myocardial infarction has expanded considerably over the years and varies with each patient. Treatment by the bed and chair method is acceptable and salutary in many instances without increased cardiac work in the chair position, except in certain circumstances. Therapy for shock varies and may consist of any one of several methods or a suitable combination of them. Arterenol is required not infrequently in sustained shock that is not otherwise controlled. Anticoagulant therapy is desirable in most instances of myocardial infarction, and phenindione seems to be a more satisfactory anticoagulant at this time. Early control of progressive congestive heart failure is important. Prevention or control of paroxysmal or sustained arrhythmias in myocardial infarction is imperative.

Box 3465, University Post Office (Dr. Wood).

---

14. Guttas, C. G.; Moloney, W. C., and Sise, H. S.: Studies on the Anticoagulant Phenylindanedione: 1. The Effect of Emulsified Vitamin K1 on Phenylindanedione-Induced Hypoprothrombinemia, Blood **8**: 276 (March) 1953.

15. Askey, J. M.: Digitalis in Acute Myocardial Infarction, J. A. M. A. **146**: 1008 (July 14) 1951.

16. Digitalis and Potassium, editorial, J. A. M. A. **146**: 1030 (July 14) 1951.

Estimating Radiologic Hazards.—To evaluate reports of monitors surveying a station in terms of existing radiologic hazards to personnel, the officer-in-charge must know the maximum radiation dosage allowed for any person; . . . the dosage personnel have already received; the effects of varying amounts of radiation on personnel; the existing dose rate of radiation in the area; and a ready, simple method for accurately and rapidly estimating the radiologic situation. With this information . . . the officer-in-charge can quickly determine whether to permit personnel to remain in the area; the period of time personnel may continue working in the area; the time when personnel should leave the area; whether personnel may safely enter another area; and how operations in a radiologically contaminated area might be continued by the proper rotation of personnel.—Commander R. P. Nadbath (MC), U. S. N., Some Rules of Thumb in Estimating Radiologic Hazards, *United States Armed Forces Medical Journal,* August, 1955.

VENOUS HUM IN CARDIAC AUSCULTATION

Dale Groom, M.D., John A. Boone, M.D.
and
Margaret Jenkins, M.D., Charleston, S. C.

The venous hum, a continuous murmur usually of maximum intensity in the supraclavicular area, is a common auscultatory finding. Heard particularly in children, it is of no known pathological significance. Its importance lies rather in its often close resemblance, because of its continuous or predominantly diastolic characteristic, to pathological murmurs. Our interest in the venous hum stems from the observation of numerous patients in the cardiology and pediatric clinics of the Medical College of South Carolina, in whom the murmur was transmitted down to various areas of the precordium where its presence was of concern in auscultation.

In this presentation the clinical features of venous hum are discussed as they pertain to cardiac auscultation. Emphasis is placed on procedures that permit the differentiation of this murmur from murmurs of pathological significance on the basis of clinical findings alone.

Most present-day textbooks of cardiology and pediatrics give brief, if any, mention of venous hum. In the older literature it received considerably more attention and was, in fact, one of the earliest recorded auscultatory findings. Laennec [1] seems to have been describing the venous hum (which he believed to arise in the carotid arteries) when he wrote "Sometimes . . . particularly when seated in the carotids, the thrill is much more extended than the diameter of the artery, and seems more superficial; it is sometimes perceptible over a space of two inches in breadth on the side of the neck. In this case the thrill is continuous and without any pulsative momentum; and its sphere seems more extended, the lighter the pressure is made with the finger." He notes later a case of an adult in whom the sound could be heard only in one position, having ". . . no thrill or bellows-sound in the heart or arteries when lying down, or sitting up in the usual manner; but if he raised himself in bed supporting himself on his elbow, a slight but very distinct purring thrill and also bellows-sound became perceptible over the extent of an inch square, a little above the right clavicle. . . ." Laennec described clearly the to and fro nature of the continuous murmur ". . . as if the artery were become a vibrating string, from which two or three notes were drawn out in succession, by advancing and drawing back the finger upon it." His observation that the murmur occasionally has a musical quality is picturesque: "In four cases I have met with this sound (which is literally musical) in the carotid arteries. In one of these cases, I at first conceived the sound to arise from an instrument in the apartment below. On a close examination it was found, that the musical notes were associated with a slight vibration of the artery, which, during its diastole, seemed to brush the edge of the stethoscope."

During the 1830's in England Hope [2] made careful clinical studies of "the loud murmur of the internal jugulars." He demonstrated that its origin was venous rather than arterial as Laennec had supposed: "On depressing the finger with sufficient force to obliterate the vein, without obliterating the carotid artery, the continuous murmur, together with the musical notes, instantly cease: which is conclusive proof that both are seated in the vein." His theory as to actual method of genesis of the sound seems as reasonable as any, that "in order to produce the murmur of the internal jugular in perfection, it was necessary to avert the face while the neck was kept perpendicular and the chin well raised. The mode in which this position acts is, in my opinion, by placing the vessel in a moderate state of tension, which is favorable to the vibration of its walls, and also increases the sonorous effect of pressure accidentally exercised on it at any particular point, as, for instance, by the sternomastoid muscle where it crosses in front of the vein. Accordingly, when the head is restored to its natural position, or is depressed, the vein is relaxed and the murmur ceases or greatly diminishes." Hope also noted that "the venous murmur is on a much lower key than the arterial bellows murmur," that it "experiences augmentations corresponding with each arterial diastole," that it "becomes louder during inspiration,—especially about its end, and weaker during expiration," and that "by the adroit management of pressure with the stethoscope over or near large veins, the venous murmur may often be raised by a gradual swell, into a more or less musical hum, such as is yielded by a child's humming top." Hope then added, "I propose to denominate this the *Venous Hum.*" There is little to add to these clinical descriptions of more than a hundred years ago.

The prevalence of venous hums in children was investigated by Landis and Kaufman [3] in a 1912 study in which they reported finding it in 84 of 99 children under 15 years of age examined at the Phipps Institute. In all it was described as a continuous murmur heard in the erect position and diminishing or, usually, disappearing completely in the recumbent position. Of the 84 cases it was heard loudest on the right side of the neck in 42, on the left in 17, and equally loud on both sides in 25. They felt that, contrary to the opinion of some of the earlier writers, the murmur had no definite relationship to anemia except, perhaps, that in anemic individuals there was perhaps less tendency for the sound to disappear on recumbency. It was their contention that "the venous hum

---

Professor of Medicine (Dr. Boone), Assistant Professor of Medicine (Dr. Groom), and Associate in Pediatrics (Dr. Jenkins), Medical College of South Carolina.

These studies were supported in part by grants from the South Carolina Heart Association and the National Heart Institute.

1. Laennec, R. T. H.: A Treatise on the Diseases of the Chest and on Mediate Auscultation, translated from the French edition by J. Forbes, New York, Samuel Wood & Sons, 1830.

2. Hope, J.: A Treatise on the Diseases of the Heart and Great Vessels, Comprising a New View of the Physiology of the Heart's Action, According to Which the Physical Signs Are Explained, from the third London edition, Philadelphia, Haswell & Johnson, 1842.

3. Landis, H. R. M., and Kaufman, I.: The Occurrence of Venous Hums in Children, Arch. Pediat. 29: 88-93, 1912.

is present in the majority of children under 15 years of age, tending to diminish in frequency as that age is reached, and finally disappearing."

The auscultatory pitfall of mistaking a venous hum for a murmur of pathological significance was pointed up by Palmer and White [4] in 1928 when they reviewed 14 cases referred for cardiac evaluation. They stressed the frequency with which the venous murmur appears at the precordium, transmitted downward from its site of origin, and its characteristic similarity to the continuous murmur of patent ductus arteriosus.

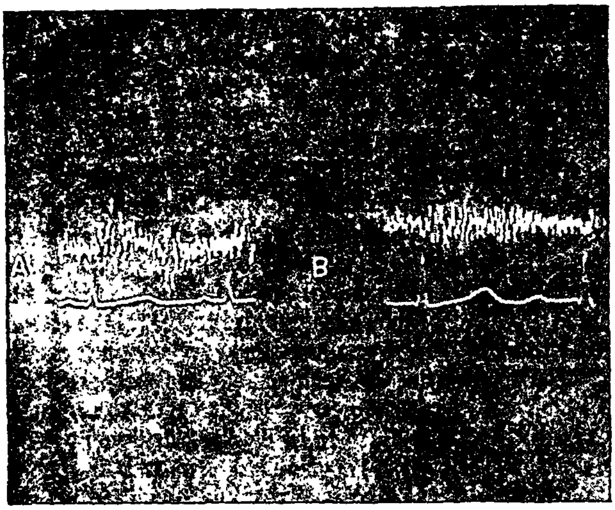


Fig. 1.—Oscilloscopic sound recordings (above) with simultaneous electrocardiograms (below) of two continuous murmurs. *A*, venous hum recorded from the precordium of a child aged 7. Murmur was of grade 4 intensity at the right supraclavicular fossa and about grade 2 at the aortic area. *B*, murmur of patent ductus arteriosus in a child aged 8. Note greater amplitude during systole, with gradual decrescendo after second heart sound (tall, upward peak at approximately mid cycle). Murmur was of maximum intensity in second and third left intercostal spaces—region from which this recording was made.

Of 250 children examined in Sweden, Graf, Moller, and Mannheimer [5] found a venous hum in well over 50% under the age of 9, the incidence decreasing to about 30% at 12 to 15 years of age. In their series it was no more frequent on the right than the left side of the neck and could be heard equally well on both sides in half the cases. They likewise cited the continuous nature of the murmur, its accentuation on inspiration and on turning the head to the opposite side, its obliteration by jugular compression, and its maximum intensity at "the triangle of Sedillot, . . . the angle between the clavicle and the insertion of the sterno-cleido-mastoid muscle." In addition to this clinical study they measured the sound frequencies in 40 cases as recorded by a system of "calibrated phonocardiography." Their results indicated that, in a venous hum, "the amplitude most often has its maximum in the frequency range of 50-175 cycles per second and often reaches 500 cycles per second."

Taussig [6] in her book on congenital heart disease stresses the diastolic accentuation of venous hum. Its differentiation from the murmur of patent ductus arteriosus is aided by "the most characteristic of all features of the venous hum . . . its change in intensity with changes in position of the head and neck."

Our own study of the venous hum has not been a statistical one. We have not attempted to ascertain its incidence among patients admitted to the pediatric and outpatient clinics of the Medical College of South Carolina, but it is our impression that the incidence of a venous hum of sufficient intensity to be heard on careful auscultation of the entire precordial area is somewhat less than the incidence of an audible venous hum in the neck. We have, rather, attempted to study some characteristics of the sound itself in a group of 14 patients, all under 10 years of age, seen at this institution during a two month period. In most of these patients the hum was discovered as an incidental finding on routine physical examination. In a few cases cardiac evaluation had been requested, presumably on the basis of this auscultatory finding.

METHODS

Graphic recordings were made of the sounds as displayed on the screen of a double-beam cathode ray oscilloscope employing a method described in a previous report.[7] By means of varying the recording (sweep) speed, two time-scales were used, one comparable to that of the phonocardiogram and the other a much faster speed revealing the wave forms and component frequencies of the sounds in detail.

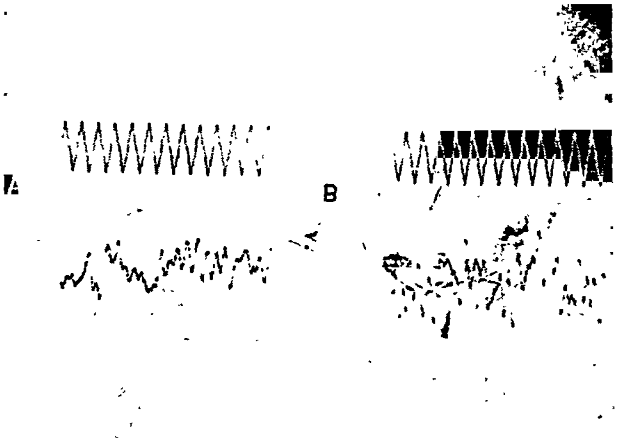


Fig. 2.—Portions of venous hum of figure 1*A* recorded oscilloscopically with expanded time scale to show greater detail of sound wave form. Both that at *A*, from systolic phase, and that at *B*, from the diastolic phase of the murmur, were made at same amplification with electronic pickup placed over right supraclavicular fossa. In diastolic phase sound is of greater amplitude and contains greater proportion of higher frequencies, both factors serving to produce accentuation of murmur during diastole.

An electronic heart sound pickup,[8] recently developed in collaboration with the General Motors Research Laboratories, was used in direct contact with the body surface in place of a conventional phonocardiographic microphone. The pickup was designed primarily for low

---

[4] Palmer, R. S., and White, P. D.: A Note on the Continuous Humming Murmur Heard in the Supra- and Infraclavicular Fossae and over the Manubrium Sterni in Children, New England J. Med. **199**: 1297-1300, 1928.

[5] Graf, W.; Möller, T., and Mannheimer, E.: The Continuous Murmur: Incidence and Characteristics in Different Parts of the Human Body, Acta. med. scandinav. (supp. 196) **128**: 167-191, 1947.

[6] Taussig, H. B.: Congenital Malformations of the Heart, New York, the Commonwealth Fund, 1947.

[7] Groom, D., and Boone, J. A.: The Recording of Heart Sounds and Vibrations: II. The Application of an Electronic Pickup in the Graphic Recording of Subaudible and Audible Frequencies, to be published.

[8] Groom, D.; Underwood, A. F.; Bidwell, J. B., and Lindberg, E.: The Recording of Heart Sounds and Vibrations: I. Historical Review and Description of a New Electronic Direct-Contact Vibration Pickup, to be published.

(subaudible) frequency recording but has a useful range of 2 to 500 cps. In order to selectively emphasize frequencies in the audible range—those that compose the actual sounds heard on auscultation—low frequencies were attenuated by means of filters in the electronic amamplifier so that, e. g., all those below 30 cps appear in these tracings at less than 15% of their actual amplitude. Otherwise the relatively slow movements of venous and carotid pulsation would obliterate the much smaller sound vibrations. Such filtering is of course not essential with the use of ordinary microphone pickups that are themselves insensitive to very low frequencies.

SOUND TRACINGS

The continuous nature of the venous hum murmur is illustrated in figure 1*A*, recorded from the aortic area of the precordium of a child aged 7. This is a slow-speed recording with the simultaneous electrocardiogram below for purposes of timing. Some increase in amplitude of the murmur is observable during diastole, though this small difference is probably a minor factor in producing what to the ear is a prominent diastolic accentuation of the sound. Figure 1*B* shows in contrast systolic accentuation of another continuous murmur, that of patent ductus arteriosus in a child aged 8. The two murmurs appear—and sound—otherwise quite similar.

In figure 2 portions of the same venous hum as recorded from the right supraclavicular area are expanded in time so that each trace represents 0.13 second. A triangular wave form of 100 cps frequency is included above as a time reference. Figure 2*A*, part of the systolic phase of the hum, is essentially a noise type of pattern, like that of most heart murmurs, and is made up predominently of an irregular assortment of frequencies on the order of 50 to 100 cps with a few as high as 200 cps.

A diastolic portion of the hum, made at the same amplification, is depicted in figure 2*B*. It is seen to differ from the systolic sound in that it contains many prominent waves of higher frequency, ranging up to 250 cps, as well as being of somewhat greater over-all amplitude. In addition there are runs of more regular vibrations, tending to have a sinusoidal type of wave form, a characteristic that was perceptible on auscultation as a certain musical quality in the hum. Doubtless the greater proportion of these higher frequencies, to which the ear is far more sensitive, is another reason for the audible accentuation during diastole.

CLINICAL CHARACTERISTICS

The venous hum, a common auscultatory finding in children, is frequently transmitted to the precordium where it may be heard with considerable intensity at the aortic and pulmonic areas, and occasionally as far down as the apex. Its point of maximum intensity is, however, readily traceable to the supraclavicular fossa, at a site approximately overlying the internal jugular vein, on one or both sides. Unlike the murmur of patent ductus arteriosus, which it resembles superfically, the venous hum has a diastolic rather than a systolic accentuation. Its frequency, and hence its pitch, tends to be higher during the diastolic phase, often with some degree of musical quality.

The following characteristic features of venous hum are of value in differentiating it from murmurs of pathological significance on clinical grounds alone. 1. It is louder with the subject in the sitting or erect position and diminishes or, usually, disappears altogether in recumbency. 2. When the stethoscope is placed at the point of maximum intensity over the jugular vein, light pressure tends to increase intensity of the murmur while heavy pressure abolishes the sound. 3. On auscultation over the precordium, firm pressure with the finger on one or both jugular veins will cause a murmur due to venous hum to disappear completely. 4. Turning the subject's head away from the side of origin of a venous hum increases the murmur's intensity. The effectiveness of this maneuver is greater if the chin is raised rather than lowered. In some subjects presence of a hum is dependent upon this position, and in most subjects it disappears when the head is turned toward the side of origin. It should be borne in mind that not infrequently venous hums arise in both sides of the neck, the quality of their sounds sometimes differing on the two sides. 5. Careful auscultation will usually reveal that a venous hum is more prominent during inspiration than during expiration. 6. Other postural changes, particularly those of the pectoral girdle as produced by weight-bearing on the arms, often have a marked (but less predictable) effect in producing or abolishing a hum.

Auscultatory characteristics of venous hums are more variable. Some tend to be more rough or groaning in character, especially their systolic components, while others are of higher pitch, of a musical, squeaking, or even blowing nature. The former types are usually heard best with a bell stethoscope, because of the attenuation of lower frequencies encountered in use of a diaphragm-type chest piece. The venous hum sound can simulate to a remarkable degree many murmurs of intracardiac origin, a consideration that merits occasional reemphasis in its bearing on cardiac auscultation.

SUMMARY

The venous hum, a physiological extracardiac murmur heard in a high percentage of children and in some adults, is characteristically a continuous murmur with accentuation during diastole. From its point of maximum intensity in one or both supraclavicular fossae, it is frequently transmitted downward over the precordium, where it may simulate remarkably murmurs of pathological significance.

16 Lucas St. (16) (Dr. Groom).

Foetor Hepaticus.—The breath of patients with severe parenchymal liver disease often has a characteristic odor, foetor hepaticus. . . . Attempts to isolate from the breath the compound producing the foetor have failed because of the very small quantities involved and the difficulty of getting a seriously ill patient to breathe against the resistance of a collecting system. . . . In patients with a strong oral foetor a very similar smell may be present in the urine. . . . Methyl mercaptan was isolated from the urine of a patient with massive hepatic necrosis; some dimethyl disulphide was probably also present. It might be expected that, in the body, methyl mercaptan would be either oxidized to dimethyl disulphide or methylated to dimethyl sulphide. We believe that foetor hepaticus is caused by the elimination of one or more of these compounds in the breath. Little is known of the pharmacology of these compounds, but by analogy with closely related compounds they may well be toxic.—F. Challenger, M.D., and J. M. Walshe, M.D., Foetor Hepaticus, *Lancet,* June 18, 1955.

THE COMPENSATION PATIENT AND THE PHYSICIAN

Jesse T. Nicholson, M.D., Philadelphia

The care of the compensation patient by the physician presents a series of events that may result in an uncooperative patient, prolonged patient disability, an unpleasant association for hospital personnel, an unappreciative employer, and a dissatisfied insurance company. Many physicians have experienced upon arrival at their office a secretary confronting them with, "Mr. Doe, of the X. Y. Z. Insurance Company, has phoned twice this morning. He wishes to speak with you right away about a patient that was admitted last night to the hospital on your service." The physician is an hour late for appointments. The fractured hip that was added to his morning operative schedule took two and one-half hours to pin. Mr. Doe's insurance case was the one patient he did not see; the resident had said, "A fracture of the os calcis was admitted last night."

THE CLAIM AGENT

The physician decides, "Let Mr. Doe blow!" but, as he skirts the corridor of the waiting room to reach the first examining room, he is trapped. Mr. Doe has squirmed by the receptionist. "Oh, doctor, just a minute," says Mr. Doe. "I phoned you at the hospital this morning while you were operating. Since I had an errand in this office building, I thought I could catch you. What will be the total disability of Abraham Zopolski, who fell down that elevator shaft last night? How long will he be in the hospital? Will you have to do an open operation on him? Will he have any permanent partial disability? How much physical therapy will be needed?" Fortunately, the physician remembers that the waiting room is loaded with patients. He does not explode. He replies, "I'll send you a report on Zopolski this evening." To his surprise, the young man now asks, "Doctor, about Henderson, who got that infection after the intramedullary nailing of his femur. How much will his hospitalization be prolonged?" Mr. Doe, the young man who has given the physician such a bad time, is a claim investigator for one of the insurance firms that underwrite compensation insurance for employers. Compensation insurance is a necessary protection for an employer and an employee. Physicians carry it for their office employees. They realize the advantage of having private insurance firms handle compensation insurance, since the only alternative would be state or government provision for compensation, with a staggering increase in the budget that the physician as a taxpayer would subsidize.

The physician appreciates that all free enterprise, including private and mutual insurance companies, survives by competition. At least the companies must do some part of the job better than their competitors. This edge could be excellent public relations or having aggressive claim agents that bear right down on the physician. The latter may be the secret of survival of the X. Y. Z. Insurance Company. Mr. Doe, their representative, is, we assume, a typical claim agent who recently started with the regional office of the insurance company. In the claims department he has been imbued with the urgency of learning at once of an accident involving an insured person and immediately obtaining information that will determine the total cost of medical care and permanent disability, so that funds may be laid aside by the insurance firm to take care of the insured person. This is important for the insurance company since many premiums are issued on a month-to-month or short-term basis. If an employer has a number of accidents in a given month, his next premium must be raised to cover the cost of care for the injuries. The cost then can be spread over several months subsequent to the month of injury. If, however, the extent of total disability and the period of hospital care, follow-up treatment, and permanent partial disability are not realized and apportioned over a period of time, the insurance company must either dig into its reserve funds or borrow. Either procedure is costly to the company. The employer, on the other hand, who has been working on a budget or contract will be equally embarrassed for funds if his premium is raised to cover costs a month or two before his contract job or fiscal year ends.

It is not my purpose to absolve liability companies. It is my wish to make the physicians' contacts with the compensation patient less arduous. For example, there should be no necessity for Mr. Doe to intercept a physician at any time during the day to inquire about a patient under his care. We are trained physicians; our primary interest has been in the rehabilitation of the sick and injured. The majority of us have specialized in a particular branch of medicine in order that we could concentrate on improving the care of patients in a particular field. We are authorities on Mr. Zopolski's injury. We cannot estimate to the day when he will go back to work, but we can give a preliminary estimate that would not be far off, and we can prognosticate that he will have a permanent partial disability. Compensation companies provide forms requesting information. These are believed simpler means of communication than a letter. We detest forms of all types. Insurance forms are, therefore, no exception. But, we all accept the fact that a physician who refers a patient to us expects a report of our examination, and it is even customary to send him progress reports. Completion of a compensation insurance form is less troublesome than writing a letter. It frequently can be handled by a secretary; in this way we could avoid Mr. Doe's interruptions.

INADEQUATE HANDLING OF COMPENSATION PATIENTS

We as physicians are prone to take exception to the compensation patient's attitude. We regard him as lacking confidence, being unappreciative, exaggerating his disability, and being uncooperative. Undoubtedly, many confusing thoughts occur to the patient during the sequence of events that follow an accident. The injured

---

Chairman's address, read before the section on Orthopedic Surgery at the 104th Annual Meeting of the American Medical Association, Atlantic City, June 8, 1955.

Mr. Zopolski is taken to the plant first-aid station, and the doctor, nurse, or first-aid team evaluate his injury and apply a splint. His family is called, but his family physician is rarely notified. It may be taken for granted that he has none. He is sent to a certain hospital because the plant doctor works there, or the insurance doctor works there, or because the plant has endowed beds at the hospital. He may be seen in the accident ward by a disinterested intern or resident. This disinterest may be the result of a policy of the hospital of assigning industrial cases to a particular Dr. Jones. At other times, the patient may be seen by a resident who is a perfectionist and who criticizes the poor splint and the plant doctors. This may be followed by a discussion of surgical care or procedures that are at variance with those utilized by the physician in charge. Too frequently a physician is prone to say, "We'll give you a little gas and fix you right up." The patient will have the impression that modern medical science is as depicted in the comic books. He, therefore, expects an immediate restoration. As he recovers from anesthesia, however, he is completely overwhelmed and sure that some catastrophe has befallen him. He awakes with nausea, headache, and at times more pain in his leg than he had before operation. Then he observes his leg is hung from a "torture rack" by ropes. When he learns that the cast is on for weeks, he is sure he has been "fouled up." No one recalls "Dick Tracy" in a cast for more than two days, and "Flash Gordon" is always restored by the following morning.

The psychological effects on the patient in the hospital are varied. The worry associated with loss of earning power, the time payments on the automobile, the separation from home, and the possibility of loss of job because of residual disability are to be considered disturbing, to say the least. The worry may be lessened by the social service department's arranging for visits by family and friends. It is also important that the patient be kept busy. Some form of occupational therapy is essential. Some type of physical therapy can always be instituted. Most patients regard exercise as work, but they live by it; therefore, the therapist should give them a routine to follow. The patient's injury may be the resident's problem, but the physician should make it his as well. He should see him on rounds, stop and speak with him, and not let him get the impression he is ignored by the physician and his questions are not answered or that the physician suspects he is not capable of understanding. The physician should explain that the patient will have to have his fracture reduced under anesthesia and that the reduction will be held by metal pins fixed in a plaster cast extending from the toe to the groin. If the possibility of a subtalar arthrodesis is imminent, he should tell him an open operation will then be possible in six to eight weeks and he will be out of work six months. The physician should tell him about when he will go home, when he will use crutches, when he must return to the hospital for a cast change, and when he will have a walker applied to his cast. If this is left to others, it may be neglected, and discontent will build up in the patient's mind.

ADVANTAGES OF A CONSULTATION

Physicians may be responsible for prolonging a patient's hospitalization, delaying his recovery, and increasing his permanent partial disability. This is prone to occur when they undertake the management of an injury with which they have not had sufficient experience. This is noticed particularly in open fractures and in fractures involving joints. Too many surgeons hesitate to request a consultation for a complicated fracture. Instead, they thumb the leaves of a textbook on fractures, or worse, read the second-class mail brochures advertising a particular piece of apparatus in which are shown reproductions of the roentgen films with the apparatus maintaining an infallible position of the fracture. Unfortunately, the brochure never warns of the appalling complications that may occur. These complications were graphically demonstrated by Dr. Charles N. Pease [1] in his chairman's address last year. No insurance carrier will question the need for a consultation, unless the physician has neglected to tell them of the consultation before the consultant presents his bill. At times the physician may be confronted with a request by an insurance company for a consultation with another physician. He should simply remember this was probably inspired by a consultant for the company who, after reviewing the hospital course and the x-ray films, believed the physician might wish to be spared getting into difficulty just as much as he desired to prevent the patient's attaining a greater disability. It may be surprising to some physicians to learn that many physicians resent the suggestion of a consultation even when the problem is in the specialty of a fellow member of their hospital staff. Too well do we know if it were a member of their family how changed their attitude would be. We have cause to wonder at times what sort of an alter ego develops in the physician looking after an industrial case; perhaps it is his fear of losing the case.

There are instances where physicians refuse to give any information to the insurance company in regard to a patient's condition. The first communication from the physician to the insurance company may be his bill for medical care. What is behind his reasoning? Does he believe all insurance reports unnecessary? Does he believe any communication will promote lay interference with the management of his patient? Has he been told by the patient's attorney not to give any information to the insurer? This physician cannot appreciate that the insurance company stays in business because it pays for good medical care. The insured employer would not continue to pay premiums to an insurance company that caused dissatisfaction among his disabled employees. The insurance company acts in the capacity of a guardian for the disabled employee. It has every right to know the answers to the questions of the Mr. Doe previously mentioned. The answers are necessary to enable the company to set aside funds to cover the medical expenses. As for the patient's attorney, he may have a right to ask that information be withheld if there is a third party involved; for example, if the patient was driving a bakery truck that was struck by a "hot rod" but not if the insurance company accepted the case as being one of injuries sustained in line of employment. In the latter case, they are then paying the hospital bills and the physician's bill and, therefore, are entitled to what information the physician can give them. The physician must also be aware that, in cases in which a third party is involved, the lawyer representing the patient desires to build up medical expenses to impress a jury. The lawyer, therefore, may insist upon the doctor's obtaining laboratory studies and consultations that are costly and unnecessary. The studies, incidentally, are charged to the insurance company that is paying for the patient's care.

---

[1] Pease, C. N.: A Critical Analysis of the Fracture Problem, J. A. M. A. **156:** 805 (Oct. 30) 1954.

ESTIMATING PERIOD OF DISABILITY

There is a great tendency for the physician to be optimistic in regard to his proved surgical abilities. A report to an insurance company showing a disability period estimated upon the minimum possible recovery period can backfire. A compensation patient upon return to work is generally expected to do the same job he did prior to his injury. This job is frequently a laborious one. If the physical conditioning of the patient was not complete before he returned to work, he will either voluntarily quit or be asked to quit because he cannot do his share of work. Then the doctor will be confronted with convincing Mr. Zopolski that he is only having conditioning pains and that by working he will get over them. Mr. Zopolski fails to be convinced and frequently finds a more sympathetic friend in the legal profession who knows a medical colleague of the physician who has a different evaluation of pain. Next the doctor finds himself before a compensation referee trying to explain pain that is disabling and pain that is not disabling.

While the claims investigator for the insurance company may have been impressed with the preliminary report of estimated disability, he now finds that he failed to advise sufficient funds to continue Mr. Zopolski's rehabilitation. Rarely do compensation patients follow a textbook formula. It is a good plan to prepare the insurance company by adding 20% to what is at first anticipated as time of total disability. In this way the insurance company and doctor are saved a poor estimation.

MORE PERSONAL PHYSICIAN-PATIENT RELATIONSHIP

When Zopolski, in the physician's opinion, is ready for work, he should discuss it with the patient. If the physician does not think he can return, his activity in occupational therapy and physical therapy should be stepped up or he should be given such a program and the physician should arrange to talk with him again in two weeks. The physician should not just write the insurance company saying Zolpolski has attained his maximum improvement; he has 50% disability of his foot; he requires no further treatment; he may return to work. This is a sure formula to send Zopolski to a lawyer and to force the physician into compensation court for a hearing before the referee. First, the physician should take time to tell Zopolski that he thinks he can try going back to work, that he believes he will continue to improve while at work as rapidly as he will continuing with physical therapy and occupational therapy, and that he realizes he will get a better pay check by going to work than he is getting for disability. The physician can say he is recommending that the insurance company pay him partial disability for 50% loss of function of his foot. He can tell him this amount may even prove to be too high or, possibly, not enough, but the true permanent partial disability can be determined better after he has worked three months or six months. If, on the other hand, the man were a structural steel worker and were to retain a 50% loss of his foot and but 45 degree motion of the knee, it would obviously be unsafe for him to consider his previous work. He should have been told some months before he had attained maximum medical restoration that he could not go back to structural steel work. He should have had an opportunity to express what other work he was fitted to do and believed he could possibly do with a stiff foot and a knee that would not permit him to climb or kneel. Efforts should have been made to prepare him, at least mentally, physically, and technically for a different type of work while he was under treatment.

EVALUATING PERCENTAGE OF DISABILITY

The method of evaluation of permanent partial disability of a compensation patient varies in different states. Generally, it is on the basis of percentage of the part, as hand, foot, leg, or arm, or on the basis of percentage of the body as a whole. In New York state, the physician in charge of the compensation patient is merely asked if the subject has or has not disability. If disability is proved, the percentage of disability is determined by physicians employed by the bureau of workmen's compensation. There are a few ways, however, that a physician might be prejudiced in his opinion of disability. The evaluation of his surgical result is often quite optimistic. The evaluation of the disability of a member of his family or a friend may be a bit pessimistic. In such situations, to avoid critical implications, it would be wise to have an evaluation of disability by a consultant. A physician must also guard against his opinion of disability being influenced when his fee is contingent upon an award to the claimant. In these cases, the claimant generally has a lawyer who may be working on such a basis. This lawyer, however, should not be permitted to place a member of the medical profession in a position subject to fee influence. The fee should be arranged prior to the examination. While most of us dislike being called before a referee, we should feel an obligation to give testimony for either claimant or defendant. If we felt this obligation more strongly we could remedy the stigma of "claimant's witness" or "insurance witness" that is too frequently attached to our colleagues.

The evaluation of a claimant's disability is a remarkable guess on the part of most physicians. This guessing can reach extremes. Two orthopedic surgeons, Drs. A. and B., with similar training, board certified, and working in the same city, testified before a federal referee that a stevedore with a healed patellar fracture had disability of the knee, according to Dr. A. (for the insurance company) 15%, and according to Dr. B. (for the claimant) 85%. It is not possible that prejudice can influence thinking to such an extent. It is possible that they were inexperienced. Resident training programs rarely touch on evaluation of disability. Certainly, if the residents had better training, such discrepancies would be less likely to occur. It is such discrepancies that take decisions that should be made by physicians out of their hands and put them in the hands of laymen. The decisions on disability, in most hospitals, are made by a junior staff member who is assigned to the industrial or compensation clinic. The residents are spared this chore because of their lack of experience and the danger of getting their chiefs into compensation court and because they are not interested. Why should it not be interesting? We teach residents to determine joint motion, both in diagnosis and in evaluation of end-result. Why should we not encourage them to do a little mathematics and determine the percentage of function loss? A few training programs carry this out with their fracture evaluations but seldom as a routine with patients recovering from compensable musculoskeletal lesions.

SUMMARY AND CONCLUSIONS

The compensation patient and the physician would have fewer problems if these recommendations were followed: 1. The insurance company should be regarded as the responsible guardian. 2. The same physician-patient relationship should prevail with the compensation patient as with other patients. 3. The family physician should not be ignored. 4. Consultations should be requested as freely as for other patients. 5. Underevaluation of disability should be considered more difficult to correct than overevaluation. 6. The patient should be informed by the physician in charge of his recommended disability rating. 7. The physician should request a consultant's opinion on disability rating rather than permit personal interests to influence his opinion. 8. The physician's appearance in compensation court should be an accepted responsibility in order to reduce instances of "claimant's witness" or "defendant's witness." 9. Disability evaluation should be included in the resident specialty training programs.

330 S. Ninth St. (7).

PREDNISONE AND PREDNISOLONE AS THERAPEUTIC AGENTS

PROGRESS REPORT ON THEIR INTEGRATION INTO GENERAL MEDICAL PRACTICE

Tom D. Spies, M.D., Robert E. Stone, M.D., Birmingham, Ala., Guillermo García López, M.D., Carlos M. Díaz Tellechea, M.D., Rubén López Toca, M.D., Alfredo Reboredo, M.D., Havana, Cuba
and
Ramón M. Suárez Sr., M.D., Santurce, Puerto Rico

The discovery of each new therapeutic agent is a challenge to the medical profession. When the judicious use of these agents may mean the difference between a useful life and a useless life and between a long life and an early death, the responsibility on the physician is overwhelming. Prednisone and prednisolone are two such agents. They are the chemical analogues of cortisone and hydrocortisone, respectively, and the chemical relations are shown in figure 1. Prednisone was formerly known as metacortandracin and prednisolone as metacortandralone. When given systemically in sufficient amounts, they have the same antirheumatic, anti-inflammatory, and antiallergic effectiveness as pituitary corticotropin (ACTH), cortisone, and hydrocortisone. As can be seen in figure 2, freedom from sodium retention is impressive. Also note in figure 2 that, following the use of cortisone, sodium excretion decreased and body weight tended to increase. The tendency to retain sodium is extremely variable from person to person under cortisone, hydrocortisone, or pituitary corticotropin therapy. At times it is a limiting factor, and in those instances the new steroids can be used to great advantage. These two new steroids, when given in toxic amounts, produce the other metabolic effects (so-called side-effects) caused by overdosage of the older steroids used as therapeutic agents. Some people are predisposed to alterations of the gastrointestinal tract, and whether pituitary corticotropin and the corticosteroids make this worse has not been fully determined. It is known, however, that perforation of ulcers can occur in persons while they are under heavy therapy with these materials even though they have no symptoms.

When pituitary corticotropin is injected into a person with normally functioning adrenals, the steroid hydrocortisone, shown in figure 1, and many other substances are promptly produced. As every physician knows, adrenal cortical hypofunction (Addison's disease) is due to lack of adrenal cortical tissue. When adrenal cortical tissue is absent, the injection of corticotropin obviously fails to produce any adrenal steroids. It is noteworthy that, when adrenal cortical tissue is absent, patients do not have symptoms of arthritis or other diseases that can be ameliorated by the use of selected adrenal steroids. It is most important to stress that, in the com-

---

Nutrition Clinic, Hillman Hospital, Birmingham, Ala. (Drs. Spies and Stone); Hospital General Calixto García, Havana, Cuba (Drs. García López, Díaz Tellechea, López Toca, and Reboredo); and Hospital Mimiya, Santurce, Puerto Rico (Dr. Suárez).

The studies in the United States were aided by grants from the Avondale Educational and Charitable Foundation of Sylacauga, Ala., the A. B. Dick Foundation of Chicago, and the Illinois Health Foundation of Chicago. *The studies in Cuba were aided by grants from the Comité* de Damas of the Hospital General Calixto García of Havana, Cuba. *The studies in Puerto Rico were aided by grants from the Fundación de* Investigaciones Clínicas of Santurce, Puerto Rico.

The prednisone used in this study was furnished by Dr. Edward Henderson of Schering Corporation, Bloomfield, N. J., Dr. Elmer Alpert of Merck & Co., Inc., Rahway, N. J., and Dr. C. J. O'Donovan of the Upjohn Company, Kalamazoo, Mich. Prednisolone was furnished by Dr. Michael Carlozzi of Pfizer Laboratories, Brooklyn, N. Y., Dr. Edward Henderson of Schering Corporation, Dr. Elmer Alpert of Merck & Co., Inc., and Dr. C. J. O'Donovan of the Upjohn Company.

Electrolyte determinations were done by William Niedermeier and Henry A. Spies Jr.

plete absence of adrenal cortical tissue, relatively small amounts, 12 to 15 mg., of the steroids shown in figure 1 can be effective in relieving the symptoms of adrenal cortical hypofunction. In recent years it has been shown that either pituitary corticotropin or certain of the adrenal steroids, when given in unphysiological doses, can be lifesaving in treating many diseases. With each of these materials we have had sufficient experience to state that we consider them the therapeutic agents of choice in many conditions, such as severe cases of pemphigus vulgaris, acute disseminated lupus erythematosus, acute exfoliative dermatoses, acute drug eruptions, acute urticarial reactions, acute allergic reactions to therapeutic agents, serum sickness, angioneuroedema, and acute bronchial asthma. When a physician is confronted with a patient with such a disease, he must evaluate promptly the sum total of the medical situation. Proper diagnosis is the very essence of successful therapy. The therapeutic agent should be chosen and employed promptly. (We find it advisable in the beginning to administer sufficiently large doses of the agent chosen and taper off, if one can, so as not to overtreat the patient. When administered for short periods in properly selected patients, we need have little concern with toxic reactions and adverse physiological effects.) In each patient there may be many conditioning factors, some of which are heredity, age, previous disease, and nutritional state, all of which can exert their influence.

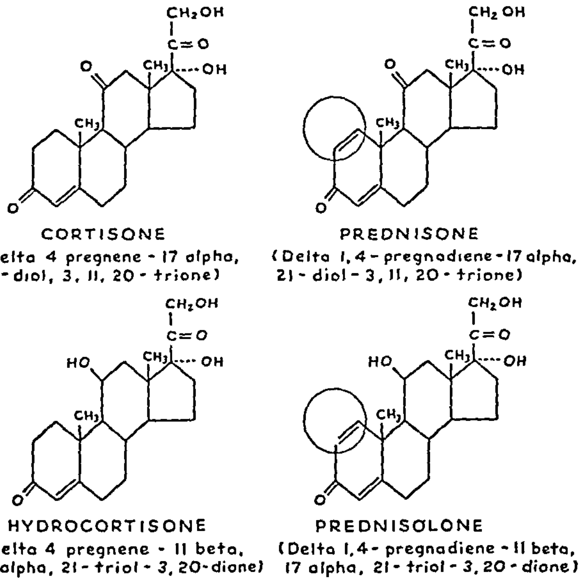

CH₂OH
C=O
CH₃
OH
O
CORTISONE
(Delta 4 pregnene - 17 alpha, 21-diol, 3, 11, 20 - trione)
PREDNISONE
(Delta 1,4 - pregnadiene - 17 alpha, 21 - diol - 3, 11, 20 - trione)
HO
HYDROCORTISONE
(Delta 4 pregnene - 11 beta, 17 alpha, 21 - triol - 3, 20-dione)
PREDNISOLONE
(Delta 1,4 - pregnadiene - 11 beta, 17 alpha, 21 - triol - 3, 20 - dione)

Fig. 1.—Structural formulas showing chemical relations of cortisone, hydrocortisone, prednisone, and prednisolone.

Hydrocortisone and prednisolone in the form of a salve or lotion are very effective in the treatment of certain skin disorders in the young, in the middle-aged, and in the aged. The hydrocortisone and prednisolone shown in figure 1 have a hydroxyl group on the 11-carbon and are a great deal more efficacious when applied locally than the two corresponding cortisone compounds. Likewise, cortisone and prednisone are not nearly as efficacious when injected into acutely swollen joints of patients with rheumatoid arthritis as are their analogues. (The ester of hydrocortisone most effective at this time and best suited is hydrocortisone tertiary-butylacetate.) Obviously then, the hydroxyl grouping on the 11-carbon is important in localized therapy. Hydrocortisone and prednisolone are incorporated in the ointment or salve in amounts of from 0.5% to 2.5%. They are painless, odorless, and practically invisible, and we have seen no sensitization to either compound. Pruritus and oozing from the skin are relieved promptly. Such treatment, of course, is suppressive, not curative. The skin of older persons is drier and rougher than that of younger persons. It has less turgor and elasticity and less fat. Drug eruptions are seen rather frequently in persons over 50 years of age, and itching may be the only evidence of drug intolerance. Circulatory, degenerative, and other diseases have an adverse effect on the skin. In the older person the allergic dermatoses tend to be more resistant to therapy than they are in the younger person. The most important single procedure in every case of allergic contact dermatitis is to find the causative agent and try to eradicate it. If the patient does not respond in a short time, a specialist certainly should be consulted.

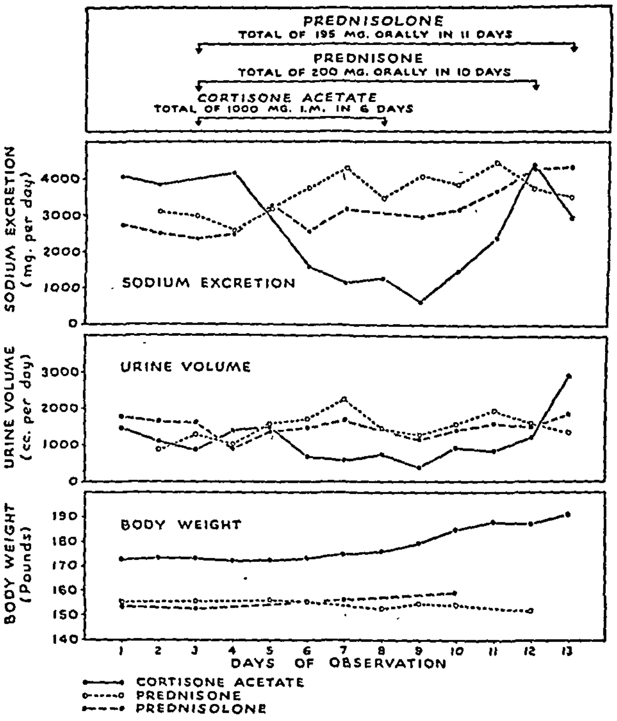


Fig. 2.—Comparison of effect of cortisone acetate, prednisone, and prednisolone on some factors of electrolyte metabolism in same patient.

EFFECTS ON BLOOD VASCULAR DISORDERS

Since we gained the impression that these new steroids sometimes tended to induce purpura and hemorrhages into the tissues, we decided to study the effects of large doses in various blood vascular disorders. Their dramatic effect on acute lupus erythematosus and certain cases of leukemia has been reported by a number of investigators, and we shall not say more. We wish to share our experience, however, in administering these materials in large amounts to patients with tropical sprue and lymphosarcoma, since we have not seen anything in the medical literature concerning their use in these diseases. Figure 3 shows the striking decrease in erythrocyte sedimentation rate and circulating eosinophils that occurred after the administration of prednisone in a patient with lymphosarcoma. The patient showed improvement promptly, the involved nodes decreased in size, and he had a great increase in sense of well-being. He developed no evidence of purpura or hemorrhages. Figure 4 shows the response of patients with typical cases of tropical sprue in relapse after the administration of prednisone and prednisolone. Not all cases of tropical sprue respond to these steroids, and certainly folic acid given orally and vitamin B_{12} given by injection are preferred methods of treatment. In fact, only patients with so-called refractory cases of sprue probably should have large doses of the adrenal steroids as a routine therapeutic trial. After the administration of adequate amounts of prednisone or prednisolone, the stools frequently change from liquid to solid just as they do after cortisone or hydrocortisone therapy. None of these patients developed hemorrhages or purpuric lesions in the skin, thus indicating that large doses may be beneficial, provided the time of treatment is not too protracted, without fear of blood vascular disorders.

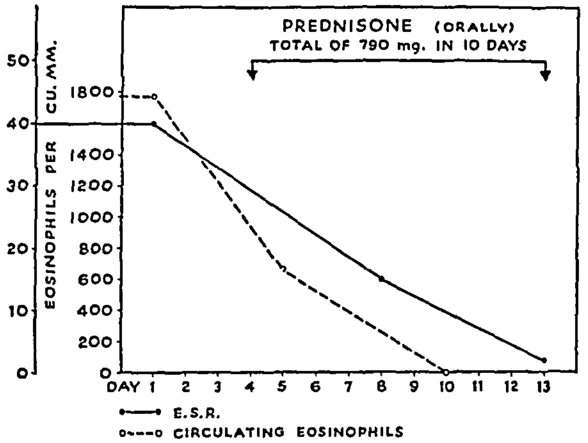


Fig. 3.—Effect of prednisone on erythrocyte sedimentation rate and circulating eosinophils in a patient with lymphosarcoma.

The fact that patients with such different syndromes as those mentioned above, and there are many others that we have not mentioned for lack of space, are benefited by the proper use of pituitary corticotropin and the steroids under consideration here supports a concept of their wide range as therapeutic agents. The amelioration of symptoms and disappearance of signs are clinical leads of great significance. One needs to know the effect on the pituitary and suprarenal glands of large doses of these steroids. Perhaps if this were known, we would know how to maintain normal functions of these glands. If we but knew enough, could we not augment function by giving proper nutrients? Is it not of the greatest significance that persons with adrenal cortical hypofunction or hypopituitary cachexia (Simmond's disease) do not have as an integral part of their syndrome arthritis, asthma, or any of these other conditions under consideration?

With this thought in mind, we will turn to a consideration of the medical problems, where there is more difference of opinion and a great deal of confusion. About one-third of the visits to doctors and clinics in the United States are made by patients who have arthritis and rheumatic diseases. These diseases are the nation's number one crippler. As a result of these diseases, some 5 million people are disabled, and each year about 300,000 become unemployed. There are many forms of rheumatic disorders—some 30 different clinical syndromes. Some of them, such as bursitis, myositis, scleroderma, lupus, and polyarteritis nodosa, are systemic only and may not involve the joints. Of all the rheumatic cripplers, rheumatoid arthritis is the worst. Its cause is unknown, and there is no specific cure for it. It strikes both young and old, but usually it appears between the ages of 20 and 50 years. Some 50% of those afflicted are disabled before they reach 45 years of age. The prognosis in many cases need not be poor if early and proper therapy is initiated. In older persons osteoarthritis is the most common form. These brief statements are the consensus of practically all physicians who have worked with arthritis and the rheumatic diseases.

In rheumatic disorders and other conditions, alterations in cellular metabolism may rapidly influence alimentation, absorption, and utilization of food elements. The long-term problem requires that we maintain proper caloric, nitrogen, vitamin, and electrolyte balances. Frequently supplemental vitamin therapy and assurance of an adequate protein intake are urgently needed. These two new steroids, like cortisone, hydrocortisone, and pituitary corticotropin, are appetite-stimulating. The increase in food intake shown in figure 5 is representative of the effect of either prednisone or prednisolone on the food intake of persons with collagen diseases. Frequently, when given enough time and an adequate diet, the patient

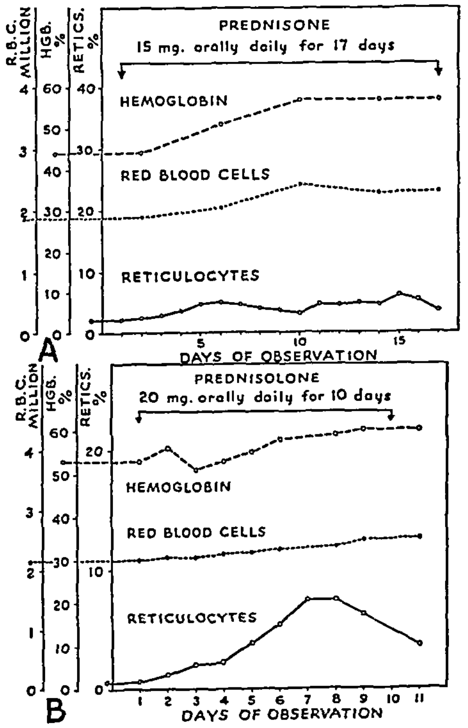


Fig. 4.—*A*, hemopoietic response of a patient with tropical sprue to prednisone. *B*, hemopoietic response of a patient with tropical sprue to prednisolone.

will restore his nutritional status toward the optimum. Supplementation of vitamins, minerals, and proteins is frequently required.

LIMITATIONS OF STEROID THERAPY

Before getting too far into specific studies and recommendations, we would like to stress, as we already have stressed in our recent article,[1] that the physician and the patient should recognize the limitations of steroid therapy; that is, these materials may give relief but they do not cure. They should guard against prolonged excessive therapy as much as possible. The physician should recognize the value of and exploit fully the use of salicylates. (They must be given as tolerated regularly, not just on occasion.) It is very important to evaluate the physical capacity of the patient and to encourage its maintenance through systematic activity, work, and/or exercises or other physiotherapy as tolerated and needed. Next and also very important, any added justifiable psychological boost should be given; that is, explain that in the course of events most cases eventually become quiescent; that in many patients activity decreases and becomes quiet; that in others there are varying degrees of activity, depending on unknown factors; that any therapy is aimed at tiding through periods of activity in hope of a period of remission; and that the better the general health can be maintained in the active periods, the better the condition in the quiescent period to follow.

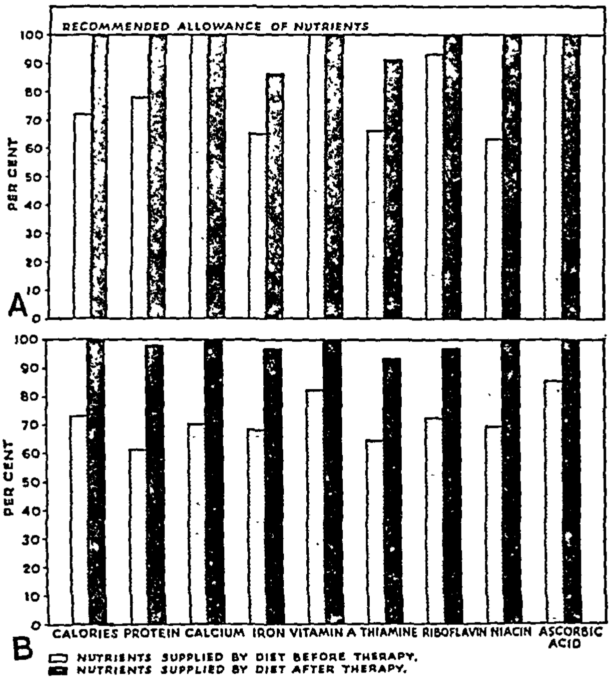


Fig. 5.—*A*, nutrients supplied by diet of patient with rheumatoid arthritis before and after treatment with prednisone. *B*, nutrients supplied by diet of patient with rheumatoid arthritis before and after treatment with prednisolone. Allowance of nutrients was recommended by the Council on Foods and Nutrition, National Research Council.

It has been obvious from the first that the steroids should always be used at a minimal dosage level. The symptoms of overdosage are well known. Acne, euphoria, abnormal appetite, frequency of urination, nausea and vomiting, headache, insomnia, leg cramps, hemorrhage, and moon face are a few of the important symptoms. Long-term treatment at a high dosage level has many hazards, and we frequently interrupt therapy to let the patient go as long an interval as possible without treatment. This has proved to be important, but we will not discuss it here as less severe cases can often be handled by a mixture of salicylates and these antiarthritic steroids. For many years we have used various forms of salicylates, and since 1948 we have been using various antiarthritic steroids and pituitary corticotropin. All of our studies have been concerned with preventing disabilities and avoiding overdosage. Each case is different, and if the physician is not resourceful, too often the body has to cope simultaneously with the disease and the remedy.

Since a considerable number of patients with chronic arthritis have been brought to us showing the stigmas of overdosage of pituitary corticotropin or the steroids, we have investigated and found that many of these patients had been undertreated, or in some instances not treated at all, with salicylates. Gradually we have shown [2] that the effect of salicylates and these newer therapeutic agents is additive and that combined therapy offers a more practical means of treating many arthritic patients. We have used many and various combinations of the salicylates and antirheumatic steroids, and we are of the opinion that there must be enough of the steroid to be definitely effective and enough of the salicylate to produce a strong additive effect so that less steroid will be required to produce the desired result.

EVALUATION OF STEROID AND SALICYLATE COMBINATIONS

The S. E. Massengill Company has sent us two formulations for evaluation. The first, Salcort, has been available for eight months, and, as far as we know, no doctor who has used it has found any evidence of water or sodium retention. It contains: cortisone acetate, 2.5 mg.; sodium salicylate, 325 mg.; aluminum hydroxide gel, dried, 130 mg.; calcium ascorbate, 65 mg.; and calcium carbonate, 65 mg. Each tablet of the second formulation contains: hydrocortisone acetate, 1 mg.; cortisone acetate, 2.5 mg.; potassium salicylate, 0.3 gm.; calcium carbonate, 60 mg.; calcium ascorbate, 60 mg.; calcium pantothenate, 5 mg.; and aluminum hydroxide gel, dried, 0.12 gm. We have found both of these products to be effective in relieving properly selected patients with rheumatoid arthritis and we have found no clinical evidence of water or sodium retention.[2] More recently the Schering Corporation has sent us a formulation, Sigmagen, that contains one of the new steroids with which we are concerned in this paper. Figure 6 shows graphically the relative proportion of the ingredients of each tablet. By weight the acetylsalicylic acid is 400 times that of prednisone. Prednisone has been shown by a number of investigators to be four to five times more potent per unit of weight than cortisone or hydrocortisone in relieving patients of the symptoms of arthritis.

---

1. Spies, T. D.; Stone, R. E., and Spies, H. A., Jr.: Metacortandracin and Delta 1 Dehydro-Hydrocortisone in Rheumatoid Arthritis, GP **12**: 73-78 (July) 1955.
2. Spies, T. D., and others: Nutrition and Disease, Postgrad. Med. **17**: 1-220 (March) 1955.

When we received the mixture of acetylsalicylic acid and prednisone, we decided to administer it to four patients whom we know well and in whom we know what type of response to expect. We considered that any combination of salicylates and these adrenal steroids, to be satisfactory, would have to produce a definite clinical improvement and decrease the erythrocyte sedimentation rate without significantly affecting the number of circulating eosinophils. The dosage and effect on the erythrocyte sedimentation rate of the four patients are shown in figure 7. In each patient there was a prompt clinical response beginning on the second day of therapy, and in none of the patients was there a significant decrease in circulating eosinophils.

Because it is important to avoid adrenal atrophy, we decided to do special studies of the effect of this mixture of acetylsalicylic acid and prednisone on the number of circulating eosinophils. We have a number of patients who have what we term chronic eosinophilia, whose circulating eosinophils decrease promptly and proportionately to the potency of the pituitary corticotropin injected. When the mixture of acetylsalicylic acid and prednisone was given to these patients in amounts up to three tablets four times a day, the circulating eosinophils of the peripheral blood did not decrease significantly. Yet, note what happened to a representative patient when other antirheumatic therapy was administered (fig. 8).

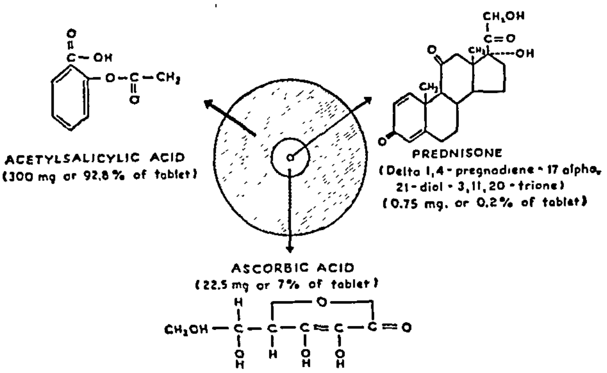

ACETYLSALICYLIC ACID
(300 mg or 92.8% of tablet)
PREDNISONE
(Delta 1,4 - pregnadiene - 17 alpha, 21 - diol - 3,11,20 - trione)
(0.75 mg. or 0.2% of tablet)
ASCORBIC ACID
(22.5 mg or 7% of tablet)
CH₂OH
C=O
OH
CH₃
O

Fig. 6.—Relative proportion of the ingredients of each tablet of formulation furnished by the Schering Corporation.

We then selected four patients who developed salicylism a few days after the administration of from 60 to 75 grains (4 to 5 gm.) of aspirin daily. We gave them the equivalent amount (in terms of aspirin) of the mixture of acetylsalicylic acid and prednisone. The patients all developed salicylism, but they still had a normal number of circulating eosinophils in their peripheral blood. Next we gave this mixture to some of the patients who had improved dramatically after the administration of suitable doses of prednisone or prednisolone.[1] The administration of these compounds was discontinued, and, when the patients were in relapse, they were given the mixture of acetylsalicylic acid and prednisone. Their response to this mixture began on the second day of therapy and was definite and good. It was not the dramatic, spectacular type of response that previously followed therapy with large doses of either prednisone or prednisolone. The patients were not as impressed with their improvement on the mixture of acetylsalicylic acid and prednisone as they were with that which followed prednisone or prednisolone alone in larger amounts. None of them had the euphoric type of response frequently observed on therapy with these compounds. Without exception, however, they all improved clinically as well as from the laboratory point of view. By giving the material as we did, that is, after meals and at night with food, none of the patients developed gastric distress, although three of them had developed it on former steroid therapy. From the results with these patients with uncomplicated rheumatoid arthritis, we decided to broaden our use of this mixture of acetylsalicylic acid and prednisone.

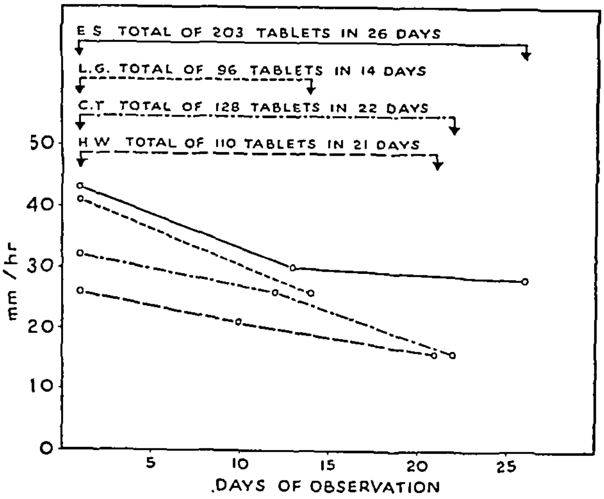


Fig. 7.—Effect of acetylsalicylic acid and prednisone on erythrocyte sedimentation rate of patients with rheumatoid arthritis.

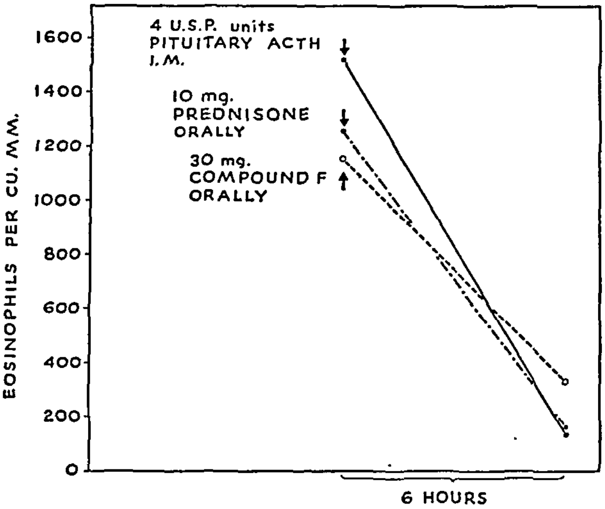


Fig. 8.—Relative decrease in circulating eosinophils in patient with chronic eosinophilia after administration of certain antirheumatic materials.

We then selected 19 patients with rheumatoid arthritis whose disability was sufficient to keep them from working but was not sufficient to keep them in a wheel chair or to keep them bedridden. After making baseline determinations on these patients, we selected from this group one patient with pernicious anemia in relapse and one with iron deficiency anemia in relapse and treated them with specific therapeutic agents, that is, vitamin B_{12} and ferrous sulfate, before giving them antirheumatic therapy. The case histories of these two patients and a third patient follow.

REPORT OF CASES

CASE 1.—A 64-year-old housewife was admitted complaining of weakness and aching of the left knee and of both feet and hands that had been present in varying degrees of severity for 25 years. Although she never was disabled, she did have to walk on crutches for several weeks soon after the onset of her illness. The pain and aching of her joints were constant and caused her considerable discomfort, especially in damp, cold weather. Many nights she could get little sleep. The pain "just seemed to use up all my energy so I have no desire to do anything, and I always feel weak and tired." She had had salicylates sporadically before she came to us, but she was never free of pain. In addition to her arthritis, which was obvious, she had pallor of the skin, nailbeds, and conjunctivas and some soreness of the tongue, which clinically suggested pernicious anemia. Laboratory findings confirmed this diagnosis. Her red blood cell count was 3,050,000 per cubic millimeter and hemoglobin 9.3 gm. per 100 cc. (60%). The bone marrow showed typical megaloblastic arrest. Repeated gastric analyses showed no free hydrochloric acid in the gastric juice even after histamine stimulation. Glucose tolerance curve was normal.

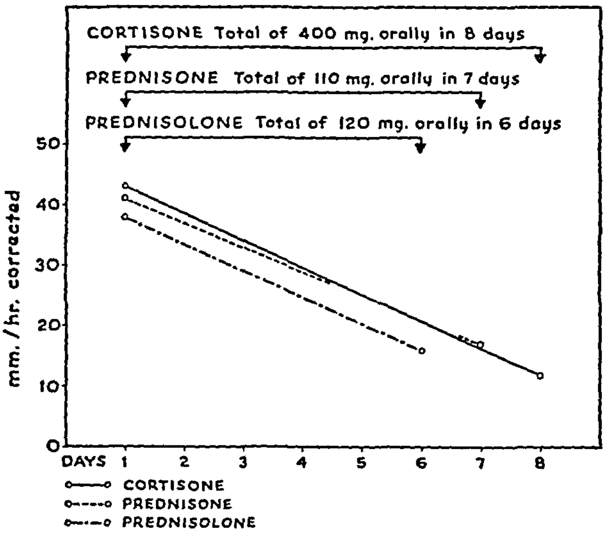


Fig. 9.—Relative decrease in corrected erythrocyte sedimentation rate with antirheumatic compounds in patient in case 2.

She was given 30 mcg. of vitamin B_{12}, which produced a typical reticulocytosis, followed by an increase in red blood cells and hemoglobin, relief of the soreness of her tongue, and disappearance of the pallor of her skin, nailbeds, and conjunctivas. While she felt much better in general, there was no relief of her arthritis, and two months later her blood values were down to the initial level. We gave her a potent intrinsic factor concentrate and 15 mcg. of vitamin B_{12} orally every day for 10 days. Again she responded as a typical pernicious anemia patient, but again the arthritis was not relieved, thus showing clearly that even though her anemia was corrected, she had not obtained satisfactory relief of her arthritis. It was obvious from the time the diagnosis of pernicious anemia was made that this patient would have to be treated with vitamin B_{12} for the rest of her life, and it will not be discussed further in this case summary.

She was given two tablets of the mixture shown in figure 6 30 minutes after each meal and two tablets before bedtime to be taken following food. After the first day of treatment, she had less aching of the joints and felt better than she had for a long time. For the first time in many months she slept all night. She stated that after therapy was initiated, she "just relaxed and went to sleep." The erythrocyte sedimentation rate slowly decreased from 22 mm. per hour to 15 mm. per hour (corrected) within a month. Circulating eosinophils did not decrease. She is now able to do all of her work and at the present time is being maintained with the mixture at the dosage level at which it was started. Later we may try to decrease it.

CASE 2.—A 41-year-old housewife was admitted three years ago complaining of arthritis, fatigue, and general weakness. Her illness began two years prior to this time with pain and swelling in the joints of her feet. Two months later her left wrist became involved. Gradually all her joints became involved. She lost her appetite, and, although she was never bedridden, she had to take aspirin every day to keep going. In addition to aspirin, she had had gold shots and physiotherapy. At the time we first saw her, she weighed 105 lb. (47.6 kg.) and appeared emaciated and anemic. Her arthritis was obviously active, and nearly all of her major joints were afflicted. Her hands and shoulders were almost useless, and her finger and wrist joints were so swollen and stiff that she could not open her hands. She was unable to raise her arms to comb her hair.

Her erythrocyte sedimentation rate was 44 mm. per hour (corrected). Her peripheral blood values were: red blood cells 3,750,000 per cubic millimeter and hemoglobin 9.7 gm. per 100 cc. (63%), and she appeared pale. Since we considered her to have an iron deficiency anemia, we gave her ferrous sulfate, 5 grains (0.3 gm.) three times a day. She continued to take aspirin when needed as she had previously. (In persons with arthritis and microcytic hypochromic anemia, the administration of ferrous sulfate frequently does not restore hemoglobin levels to normal, but there is usually significant improvement in the anemia.)

The arthritis did not decrease in activity or severity as measused by clinical or laboratory findings. After about two weeks her hemoglobin level began to increase and her general health began to improve. She gradually gained weight and strength; her fatigue decreased; and she became more energetic. At the end of two months she was a great deal better. She was much less weak and looked better, but her arthritis had not decreased in severity. We gave her cortisone, as seen in figure 9, and associated with the prompt decrease in erythrocyte sedimentation rate was a striking clinical response. She soon was able to do all her housework. Cortisone therapy was discontinued, and for several days she had a difficult time. Gradually she relapsed and we gave her prednisone, as shown in figure 9, with a similar striking change in sedimentation rate and clinical response. Again this therapy was discontinued, and again there was a similar relapse. We gave her prednisolone, as shown in figure 9, with a similar response. At this time she weighed 124 lb. (56.2 kg.). With the last two therapeutic agents it was difficult to find any circulating eosinophils in the blood. Once again she relapsed when taken off therapy, and her joints became stiff and painful. She was then given one tablet of the special steroid-salicylate mixture 30 minutes after meals and at bedtime after food. She obtained little relief after four days' treatment. The dosage was then increased to two tablets four times a day, and relief began in 24 hours after the increased dosage. Gradually all the pain left. She began to sleep well, and she feels that the relief from this therapy, although less spectacular, is as complete. She is eating well and is gaining weight without sodium retention; she weighs 132 lb. (59.9 kg.) and does all housework.

Most patients with moderately severe arthritis have definite evidence of some nutritive failure at times. The administration of the corticosteroids will bring up the nutritive status toward optimum. We feel, however, that patients respond much better and that it is better for them to receive heavy supplements of the water-soluble vitamins, protein, and minerals, especially iron and calcium. With heavy supplementation, the patient's convalescence frequently is shortened, and he may be able to return to work sooner than he otherwise would. Sixteen of the 17 remaining patients in the group had at some time during their illness taken aspirin. The following representative patient was selected because he never had had treatment of any kind.

Case 3.—A 64-year-old brickyard worker was admitted complaining of pain in the left leg and swelling, pain, and stiffness of the left knee. Thirty-five years previously he had rheumatism in his right leg that forced him to stay away from work for eight weeks. The present attack began eight months prior to his admission, with pain and swelling of his left knee. It was most painful when he was sitting or trying to sleep, and he could sleep only when his leg was in one certain position. As soon as he moved it, he awakened and usually could not get back to sleep. Often he felt so miserable when he came home from work that he went to bed without eating. He lost 12 lb. (5.4 kg.) in body weight. Despite his discomfort, he continued working until a week before his admission when he lost his job. He had taken no medicine but had rubbed his knee with liniment or alcohol. His pain was becoming increasingly worse. He came to the clinic with a friend whom we were treating for arthritis and asked to be treated because "I am hurting so bad and I've lost my job!"

Physical examination showed slight limitation of closure of his fingers. His left knee showed moderate increase in fluids. The knee was generally swollen and tender. Figure 10 shows the anterior aspect. He could flex his knee about 45 degrees. He could not straighten his leg. Erythrocyte sedimentation rate was 23 mm. per hour. He was given two tablets of prednisone and acetylsalicylic acid mixture 30 minutes after each meal and at bedtime after food. Relief of pain in his knee began the day after treatment was begun, and he had a more restful night than he had had in months. By the following day most of the swelling of his knee had subsided. By the fifth day the swelling had disappeared (figure 10). By the ninth day of therapy all the pain had disappeared. Slight soreness of the knee remains when he walks, but he feels "90 per cent more better".than he did before treatment. He sleeps well and eats well. His appetite is so good that "I could eat peanuts even though I haven't any teeth, and I can just sit down and sleep any time." He feels "good all over—just like getting up and going all the time." It is interesting that the pain in his knee was so prominent in his mind at the time of his admission that he was not aware that his other joints were stiff. When the pain and swelling of his knee decreased, he volunteered that all his joints were much less stiff and that he could move all of them with ease. After 10 days of therapy his erythrocyte sedimentation rate decreased to 13 mm. per hour. The circulating eosinophils in the peripheral blood decreased little. He has gained 6 lb. (2.7 kg.) in body weight and has returned to full-time work on his job.

This patient obviously would have obtained great relief from an injection of a proper antirheumatic compound into his knee joint, such as hydrocortisone or prednisolone, but he would not have had the general improvement that he had after treatment with the mixture of acetylsalicylic acid and prednisone, and he probably would have had to return within a few weeks for another injection. Each of the 19 patients showed definite, prompt, and continued clinical improvement after the administration of this mixture of acetylsalicylic acid and prednisone. The swelling of their joints decreased, as was shown by our x-rays, and the erythrocyte sedimentation rate decreased. The circulating eosinophils in the peripheral blood did not change regularly or significantly. We consider the response to this compound has answered our objectives mentioned previously.

We were contemplating how to obtain a mixture of prednisolone and acetylsalicylic acid to make studies similar to the above when the Upjohn Company sent to us for evaluation a suitable formulation under the name of Cordex. Each tablet of this formulation contained: 0.5 mg. delta-1-hydrocortisone and 300 mg. acetylsalicylic acid. We then selected 15 patients similar to those described above and followed the same procedures with essentially the same results, thus establishing that this compound also is a safe and effective therapeutic remedy. It is obvious that very severely affected patients will not obtain as much relief from any of these mixtures as might be desired, and they should be given large doses of corticotropin or the corticosteroids. The physician can decrease doses of corticotropin and corticosteroids oftentimes by administering a mixture of acetylsalicylic acid with either prednisone, prednisolone, hydrocortisone, or cortisone. The sooner he can make this change, the better the patient will be. None of these mixtures is recommended as the sole therapeutic agent of choice in persons with overwhelming rheumatic, arthritic, or collagen diseases.

COMMENT

Rheumatic diseases are by far the most common cause of chronic illness in our country. They kill relatively few of the millions they cripple. We have studied and are studying the effect of pituitary corticotropin, cortisone, hydrocortisone, prednisone, and prednisolone on the general clinical condition and the nutritional and metabolic processes of our patients. With the newer methods of treatment, the life of a patient with rheumatoid arthritis can take on an improved outlook. The treatment of such patients requires a knowledge of what is behind the physiological disturbance and judicious management of all pertinent factors.

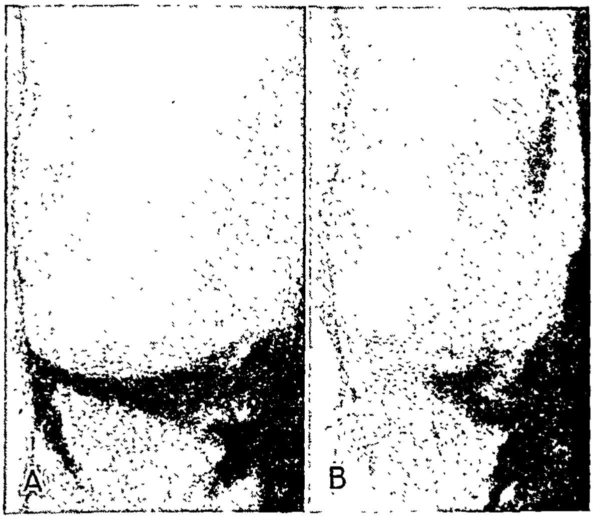


Fig. 10. Swelling of anterior aspect of knee of patient in case 3; *A*, at beginning of treatment and *B*, five days later.

The physician is guided by clinical symptoms of weakness, pain, appearance of the joints, appetite, changes in body weight, temperature, pulse, and laboratory findings. It must be emphasized over and over again that, although we have effective therapeutic agents, they are not in themselves replacement therapy. Many patients may lead an almost normal existence if one explains to them how to avoid undue stresses, strains, and fatigue, how to take suitable exercises, and how to manage their diets properly. Some of these patients are in danger of crises, and, if the patient is sufficiently stoic, the physician should warn him of impending dangers. He should make it clear to him that, although his illness is chronic, it may become seriously acute at any time. This can be explained to the patient in such a way that his heavy burden is made more understandable to him and more bearable. Much must be presented to the patient concerning the management of his illness—how to avoid overexertion, infections, marked changes in temperature, injuries, and improper diet. Dietary management is very important. Patients with rheumatoid arthritis tend to have some degree of malnutrition, and this should be corrected. The diet should be what is proper to maintain optimal weight; it should be high in protein, minerals, and vitamins, and the caloric intake should be adjusted to suit the individual needs of the patient. The physician should guard against prolonged excessive therapy. If the patient has had an overdosage of hormones, he should be taught the danger of overdosage and how to obtain as good results as possible without overdosage. In case of overdosage, the size of the dose should be decreased, of course, but it should not be done too abruptly.

The proper care of the patient includes an understanding of the altered physiological status of the patient and the use of a wide range of therapy. It must be highly individualized, but only at times of crises should the patient have constant therapy. During therapy the necessity of frequent observations cannot be overstressed. Although these new agents have been studied for a relatively short period of time, we have found that they fill a need and are not merely a duplication of therapeutic agents. Patients with heart disease, those with hypertension, and those who for reasons yet unknown tend to retain sodium when given cortisone, hydrocortisone, and pituitary corticotropin can be more easily and more fully treated with these new steroids. We believe that they have a special place in cases of rheumatism that can be controlled with salicylates and a small amount of the steroid. Once again we should emphasize that the benefits are suppressive only and that the smallest possible dosage is always preferred. With this mixture the patient can be treated in a more leisurely manner and can be better controlled. They usually feel better within 24 hours. Because of the smaller dose of steroid, they do not develop as much increased psychomotor activity, fat deposits, restlessness, and insomnia. There is an absolute necessity for long-term studies of the therapeutic agents used in arthritis.

The physician must relieve pain in his patients with arthritis, otherwise pain prevents adequate sleep and rest, adequate food intake, and sufficient exercise, all of which are important factors in recovery. Aspirin has had an uninterrupted popularity since it was first synthesized. It is commonly used at the rate of 15 tons a day in the United States. It is absorbed from the gastrointestinal tract, distributed through the body, and excreted in the urine. A large part of the salicylates in the blood is bound to plasma proteins. The tissue proteins bind the steroids in such a way that they properly act as a protein-steroid mixture, and, if they are used along with aspirin, temperature is lowered and painful tissues are relieved. These materials can be used to the point of tolerance, and, if possible, to complete elimination of the symptoms. They are rapidly absorbed, and gastrointestinal irritation is decreased and prevented if food is given with each dose of the material. Also, large amounts of fluid, at least 3,000 cc. a day, should be given. Many patients can be helped by suitable mixtures of aspirin and steroids, and nowadays, when hospitals are overcrowded, such mixtures are especially valuable in the treatment of arthritis.

SUMMARY AND CONCLUSIONS

Prednisone and prednisolone are important new therapeutic agents. They have in general the same clinical indications as pituitary corticotropin, cortisone, and hydrocortisone. They have the same contraindications, except that they do not tend to promote sodium and water retention. They are more active per unit of weight than the older corticosteroids, being four to five times as potent as orally given cortisone or hydrocortisone per unit of weight. We intensify all usual objective measures in care of patients and always use a minimal effective dose. The benefits to the patients are suppressive only, and the patients feel better in 24 hours. Objective criteria appear in one to four days. Control of the very severe forms of diseases is not always possible.

Throughout these studies we have tried to demonstrate by examples that the modern treatment of rheumatic diseases, especially rheumatoid arthritis, is a comprehensive and highly individualized program and not merely the administration of one or two antirheumatic agents. The many aspects of total, adequate care and medical management are far beyond the limits of this progress report. A completely specific antirheumatic agent has yet to be discovered. In all patients to whom we gave these two new corticosteroids, there was prompt and definite decrease of stiffness, pain, and tenderness, followed by a receding of swellings and effusions. The milder flexion deformities were corrected, and there was great increase in muscular coordination and range of motion of the affected joints. Likewise, the systemic symptoms and abnormal laboratory findings tended to return to normal. A proper mixture of salicylates and corticosteroids produces an effective antirheumatic agent in many patients, and the administration of such a mixture cuts down the danger of toxic reactions and restores the patients in many instances to employability. Of the three steroid-aspirin mixtures, only the Salcort contains ingredients designed to prevent or minimize the production of gastric acidity. These new corticosteroids should be used more widely so as to avoid the deformity, disability, nutritive failure, and all other things that may go with the risks of leaving the patient untreated.

Arthritis in the Elderly.—It is amazing how many elderly people will resign themselves to several years of hip, knee, or shoulder pain, believing that it is an inevitable accompaniment of ageing, rather than seek advice at an early stage when outpatient treatment is possible. Diagnosis is sometimes far from straightforward; beware the elderly patient who has signs and symptoms of osteoarthritis confined to one large joint, particularly the hip. Before we had a portable x-ray unit we treated these patients without x-ray examination but we never do so now. In 3 cases of unilateral arthritis, the cause was found to be an impacted fracture of the femoral neck which the patient could never recall sustaining; in 4 cases symptoms were due to secondary deposits in the upper femur or ilium; and in 3 cases we found Paget's disease of which there was no clinical evidence elsewhere. The response to mixed endocrine therapy in Paget's disease has been dramatic.—S. M. Vine, M.D., Clinical Pitfalls in the Elderly, *Lancet,* July 16, 1955.

RHEUMATIC FEVER—DIAGNOSIS, PROPHYLAXIS, AND THERAPY

Milton S. Saslaw, M.D., Miami, Fla.

Jones[1] divided the symptoms and signs of rheumatic fever into major and minor manifestations. Aware that other disease states may produce similar symptom complexes, he cautioned that his criteria be used only as a guide and that each sign and symptom be correlated with consideration of the patient as a whole. This is so important that it bears further emphasis. According to the American Heart Association,[2] to make a reasonably presumptive diagnosis of rheumatic fever, at least two of the major manifestations, or one of the major and two of the minor manifestations, must be present.

The major manifestations include arthritis, carditis, and chorea (table 1). Typically, arthritis begins in one joint and then travels to involve others; thus, the term migratory polyarthritis. The individual joint is red, hot, swollen, and painful. Fluid drawn from such a joint fails to yield any bacterial organisms. This symptom varies in severity and is uncommon in southern climates.

The second major manifestation, carditis, is probably present universally in rheumatic fever. Its evaluation depends on combined findings on physical examination and roentgenographic, fluoroscopic, and electrocardiographic examination. The development of a new murmur that changes its character is significant. In the early stages of rheumatic fever, the commonest murmur is a soft, apical systolic one. This, however, is difficult to interpret and often will defy final evaluation for many weeks or months. It should be remembered that such an abnormality may be an innocent murmur that was not previously recorded, or it may represent a temporary dilatation of the mitral valve ring, such as commonly occurs in any febrile illness. The observation of changing heart size on fluoroscopy or roentgenographic examination is, of course, indisputable evidence of cardiac involvement.

Most physicians have come to rely on the electrocardiogram as one of the most important tools in the evaluation of heart involvement. It is true that the P-R and Q-Tc intervals are prolonged in rheumatic fever,[3] but they are also lengthened by other toxic conditions. Moreover. a recent report by Engleman[4] and co-workers would seem to indicate that electrocardiographic changes should be carefully weighed, especially if they are the only signs indicative of cardiac involvement. In a follow-up study of 135 soldiers, four to eight years after their initial attacks of rheumatic fever, Engleman and his associates found that, of 34 who had had murmurs, with or without electrocardiographic changes during their Army illnesses, 30 had evidence of rheumatic heart disease at the end of the study. On the other hand, of 35 who had had electrocardiographic disturbances as the sole evidence of rheumatic infection, only one was found to have heart disease on follow-up.

The third manifestation of rheumatic fever is ordinary chorea. This has been linked to rheumatic fever because of its frequent coexistence with other symptoms of the disease and because rheumatic heart disease follows more cases of chorea than might be anticipated. Today, the relationship of chorea to rheumatic fever is open to question for a number of reasons. Although approximately 75% of those with rheumatic fever develop heart lesions in the course of 10 years, only 5% of those with "pure" chorea, that, is chorea as the only symptom of rheumatic fever, ultimately develop heart disease.[5] In "pure" chorea, females vastly predominate,[6] but this is not so in rhematic fever as a whole. Furthermore, certain laboratory data are different in "pure" chorea. Unlike the situation in other forms of rheumatic fever, in "pure" chorea there is no increase in hexosamine,[7] serum levels of nonspecific hyaluronidase inhibitor,[8] and serum mucoproteins[9]; there is no bone marrow plasmacytosis[10]; and C-reactive protein is absent.[11] Rheumatic fever does not follow chorea unless there is an increase in the erythrocyte sedimentation rate, but elevations in the erythrocyte sedimentation rate in "pure" chorea may well be due to other hidden areas of involvement, notably unrecognized carditis. There is another indication that "pure" chorea may be a different entity from rheumatic fever. Streitfeld and I[12] have observed that patients with "pure" chorea give different responses from patients with active rheumatic fever to a skin test that we are developing for the determination of rheumatic activity. This test will be discussed in greater detail.

The minor manifestations of rheumatic disease (table 1) include fever, failure to gain weight, epistaxis, various skin lesions (erythema nodosum, erythema multi-

---

From the Department of Medical Research, National Children's Cardiac Hospital, and the Department of Medicine, University of Miami School of Medicine.

Read before the Eighth Clinical Meeting of the American Medical *Association. Miami, Fla., Dec. 2, 1954.*

The Trafuril used in this study was supplied by Ciba Pharmaceutical Products, Inc., Summit, N. J.

1. Jones, T. D.: The Diagnosis of Rheumatic Fever, J. A. M. A. **126**: 481 (Oct. 21) 1944.

2. Nomenclature and Criteria for Diagnosis of Diseases of the Heart and Blood Vessels, ed. 5, New York, New York Heart Association, Inc., 1953.

3. Wilson, M. G.: Rheumatic Fever: Studies of the Epidemiology, *Manifestations, Diagnosis, and Treatment of the Disease During the First* Three Decades, New York, Commonwealth Fund, 1940, p. 437.

4. Engleman, E. P.; Hollister, L. E., and Kolb, F. O.: Sequelae of Rheumatic Fever in Men: Four to Eight Year Follow-Up Study, J. A. M. A. **155**: 1134-1140 (July 24) 1954.

5. Kagan, B. M., and Mirman, B.: Sydenham's Chorea: Syndrome for Differential Diagnosis, J. Pediat. **31**:322 (Sept.) 1947.

6. Schwartzman, J.; McDonald, D. H., and Perillo, L.: Sydenham's Chorea: Report of 140 Cases and Review of Recent Literature, Arch. Pediat. **65**: 6 (Jan.) 1948.

7. Rosenberg, C., and Schloss, B.: Plasma Hexosamine Levels in Acute Rheumatic Fever, Am. Heart J. **38**: 872 (Dec.) 1949.

8. Good, R. A., and Glick, D.: Mucolytic Enzyme Systems: Nonspecific Hyaluronidase Inhibitor in Rheumatic Fever, J. Infect. Dis. **86**: 38 (Jan.-Feb.) 1950.

9. Kelley, V. C.; Adams, F. H., and Good, R. A.: Serum Mucoproteins in Patients with Rheumatic Fever, Pediatrics **12**: 607 (Dec.) 1953.

10. Good, R. A., and Campbell, B.: Relationship of Bone Marrow Plasmacytosis to Changes in Serum Gamma Globulin in Rheumatic Fever, Am. J. Med. **9**: 330 (Sept.) 1950.

11. Stollerman, G. H., and others: Determination of C-Reactive Protein in Serum As Guide to Treatment and Management of Rheumatic Fever, Am. J. Med. **15**: 645 (Nov.) 1953.

12. *Streitfeld, M. M., and Saslaw, M. S.: Cutaneous Test for Rheumatic* Activity in Children, Proc. Soc. Exper. Biol. & Med. **84**: 628 (Dec.) 1953. Saslaw, M. S., and Streitfeld, M. M.: Skin Response to Trafuril: Possible Test for Rheumatic Activity, J. Florida M. A. **41**: 21 (July) 1954.

forme, and subcutaneous nodules) and lassitude, as well as a number of changes in the blood and serum, such as elevated sedimentation rate, leukocytosis, anemia, and alterations in certain antibody responses. Electrocardiographic changes have already been discussed.

The serologic changes in rheumatic fever are valuable diagnostic aids. Two of the most frequently used tests are antistreptolysin-O and C-reactive protein determinations. The former specifically measures the antibody response to oxygen-labile streptocolysin, one of the extracellular antigens produced by group A beta hemolytic streptococci. It is therefore an index to infections with this group of organisms that are believed to be etiologically related to rheumatic fever. This disease has been reported [13] to follow approximately 3% of all group A beta hemolytic streptococcic infections. The C-reactive protein test, on the other hand, is nonspecific, being positive in many disease conditions. It therefore can be used only as a guide in following activity in rheumatic disease after the diagnosis is already established, in the same way as the sedimentation rate is used.

TABLE 1.—*Manifestations of Rheumatic Fever*

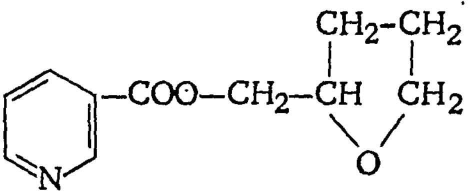
Major
Migrating polyarthritis
Ordinary chorea
Carditis

Clinical
Fever
Abdominal pain
Erythema marginatum or multiforme
Precordial pain
Subcutaneous nodules
Purpura
Epistaxis
Pulmonary involvement
Muscle or joint pains
Anorexia
Easy fatigability
Retardation of growth

Laboratory
Electrocardiographic changes
  P-R prolongation
  Q-Tc prolongation
  Sinus tachycardia
  Other rhythm changes
Microcytic anemia
Leukocytosis
Increased sedimentation rate
Serologic abnormalities
  Elevated antistreptolysin-O titer
  Elevated antihyaluronidase titer
  Increased antistreptokinase
  Presence of C-reactive protein

Antistreptolysin-O titers vary markedly according to the age and geographic origin of the individual. Rantz [14] noted a mean titer of 1:238 in children 5 to 12 years of age in the San Francisco area. This is in contrast to a mean titer of only 1:100, which Streitfeld and I [15] found in a study of 996 serums taken from Miami school children 6 to 8 years old. In general, it has been stated that rheumatic fever is attended by a higher, more persistent elevation in antistreptolysin-O titer averages than uncomplicated streptococcic disease. The wide variations observed in antistreptolysin-O titers within any single population make the interpretation of a single sample from any one individual at any one time difficult and of dubious value. Only serial studies, taken at three to four-week intervals, will permit adequate evaluation. Furthermore, in our own titration studies in Miami we have observed rises in antistreptolysin-O titer in children harboring group C and group G organisms in their throats similar to those in children from whose throats group A beta hemolytic streptococci were recovered. Group C and group G beta hemolytic streptococci, according to our present concepts, are not related to rheumatic fever.

Although Jones' criteria, together with laboratory tests and serologic studies, enable us to diagnose rheumatic fever with reasonable accuracy, I am sure that many physicians have at some time hoped for a single specific test, especially in atypical cases, where the evaluation of rheumatic activity is difficult.



Structural formula of Trafuril.

For the past year and a half at the National Children's Cardiac Hospital, Streitfeld and I have been working on a test for rheumatic activity, which I mentioned earlier. We have found [12] that when a 5% ointment of Trafuril (the tetrahydrofurfuryl ester of nicotinic acid) is applied to the skin, normal subjects and patients with inactive rheumatic disease and congenital heart disease develop hyperemia, with or without edema, at the site of application. This has been termed a typical (normal) reaction. In contrast, patients with rheumatic activity give a nontypical response characterized by failure of the skin to redden or by blanching. Thus far, about 1,200 tests have been performed by 37 investigators working independently throughout the country. Preliminary results seem to indicate that skin testing with Trafuril may be of value in distinguishing active from inactive cases of rheumatic fever. A typical hyperemic reaction was observed in 95% of our normal subjects and in 97% of the patients without active rheumatic disease, as against a nontypical response in 86% of the active cases (table 2).

TABLE 2.—*Responses to Trafuril*

Group, by Diagnosis	No. of Cases	Typical		Atypical		Doubtful	
		No.	%	No.	%	No.	%
1. Controls (healthy normal subjects)	271	258	95.2	9	3.3	4	1.5
2. Congenital heart disease	57	52	91.2	5	8.8	..	...
3. Rheumatic fever, active	114	15	13.2	98	86.0	1	0.8
4. Rheumatic fever, inactive	356	346	97.2	6	1.7	4	1.1
5. Rheumatic activity, suppressed	22	15	....	7	...	..	...
6. Questionable rheumatic activity	39	23	....	12	...	4	...

Studies are in progress to determine the specificity of this test. There is some indication at the present time that the nontypical response noted in patients with active rheumatic fever may be due to streptococcic infection rather than to rheumatic fever per se. The underlying mechanism of the test also is under investigation.

PROPHYLAXIS

What can be done at the present time to prevent rheumatic fever? There is no known direct preventive measure. Prophylaxis of the disease is aimed at preventing infections with group A beta hemolytic streptococci, which precede initial or recurrent attacks of rheumatic fever. The recommendations of the American Heart Association are familiar: that sulfonamides or penicillin be administered daily for at least five years or until the age of 18 (whichever is later) to all persons who have had one or more attacks of rheumatic fever. It is believed that in this way streptococcic infections will be prevented, and thus also rheumatic attacks. In our era of rapid development of countless new drugs, many of which have apparent bacteriostatic or bactericidal effects on the beta hemolytic streptococci, it is difficult to decide which agent is most effective in eradicating streptococci from the throats of potential victims of rheumatic fever. For this reason, present policies, as advocated by the American Heart Association, may be regarded as interim policies and undoubtedly will be modified from time to time.

---

[13] Rammelkamp, C. H., Jr.; Weaver, R. S., and Dingle, J. H.: Significance of Epidemiological Differences Between Acute Nephritis and Acute Rheumatic Fever, Tr. A. Am. Physicians 65: 168, 1952.

[14] Rantz, L. A.; Randall, E., and Rantz, H. H.: Antistreptolysin "O": A Study of This Antibody in Health and in Hemolytic Streptococcus Respiratory Disease in Man, Am. J. Med. 5: 3 (July) 1948.

[15] Streitfeld, M. M.; Saslaw, M. S., and Doff, S. D.: Group A Beta Hemolytic Streptococci and Rheumatic Fever in Miami, Fla.: Bacteriologic and Serologic Studies from October, 1953 through May, 1954, to be published.

In the light of our present knowledge, let us consider who should receive prophylaxis. Ideally, everyone who is susceptible to rheumatic fever should be protected. However, rheumatic fever may attack anyone at any age. Furthermore, group A beta hemolytic streptococci, the *sine qua non* of rheumatic disease, is not at all a rare organism. In a survey that Streitfeld and I have been conducting in healthy first and second grade school children in Miami, we found[15] that, of 351 whose throats were swabbed at monthly intervals from October, 1953, through May, 1954, 37.9% had group A beta hemolytic streptococci recovered from their throats at least once. When corrections are made for absentees, for the four-month school vacation period not included in the study, and for the technical possibility of failure to recover streptococci, it is reasonable to assume that about half of the children 6 to 8 years old in Miami, Fla., harbor these organisms in their throats at least once a year. Furthermore, as indicated previously, those children from whose throats the organisms were recovered had significantly higher antistreptolysin-O titers than those from whom no such organisms were cultured. This indicates that the streptococci recovered evoked a systemic reaction and thus definitely exerted an effect on these subjects.

Therefore, it is obvious that for a program of prophylaxis to be maximally effective, all children, at least, should receive preventive medication. As children constitute about 15% of the total population, this would mean that over 10 million children in the United States would have to receive antibiotics. Furthermore, as the protective action of antibiotics against streptococcic infection is not effective after medication has been stopped for a two-week period, prophylaxis would have to be administered on a relatively permanent basis. Obviously, such widespread prolonged administration of drugs is not feasible.

A more reasonable approach therefore has been to give medication to children who have already demonstrated a susceptibility to rheumatic disease by having had an episode of this illness. This explains why, at the present time, the American Heart Association recommends that every child who has had one or more attacks of rheumatic fever, with or without heart disease, should be placed on a program of continuous protection.

How long should preventive measures be used? As the number of initial and recurrent attacks of rheumatic fever falls sharply at adolescence, and as over 90% of recurrences occur within a five-year period following the last previous episode of the disease, the American Heart Association states that all children with a history of rheumatic fever should be constantly maintained with medication until the age of 18 years. In those individuals who suffer an attack of the disease after the age of 13 years, therapy with such drugs should be continued for a minimum period of five years. Some workers even extend their recommendations for prophylaxis in rheumatic subjects to lifetime use of appropriate medication. Therapy should be started two weeks after a streptococcic infection, or when a rheumatic patient is first seen.

What drugs and what doses are to be used? The sulfonamides and penicillin provide the most effective agents at this time. The sulfonamide of choice is sulfadiazine, which has as its chief advantage over penicillin its lower cost and the fact that it can be used in those patients who have developed sensitivity to the antibiotic. Sulfadiazine is given in 0.5 to 1.0 gm. doses, depending on the weight of the patient. In administering sulfadiazine, it should be remembered that since this drug is bacteriostatic and not bactericidal in its action, it has no effect in eradicating an acute streptococcic infection once it has been established, but it can be used very effectively to prevent reinfection. Also, it should be borne in mind that resistant strains of group A beta hemolytic streptococci have been known to develop with the prolonged use of sulfadiazine, and some children are sensitive to this agent.

Penicillin is far more costly than sulfadiazine. Sensitivity reactions to penicillin have been reported in from 3 to 15% of those to whom it has been administered. On the other hand, no resistant strains of group A beta hemolytic streptococci have been reported when penicillin is given. Furthermore, penicillin is bactericidal and will eliminate whatever infection exists, as well as prevent new organisms from causing disease. The antibiotic can be given by mouth in 300,000 unit tablets twice a day, a half to one hour before meals or at bedtime. In many states, penicillin tablets are provided by the state health agencies, thus making it possible for indigent children to obtain suitable medication that they could not otherwise afford.

A new form of penicillin has recently been studied by Stollerman and Rusoff.[16] It is long-acting benzathine penicillin G, the administration of which is by intramuscular injection. The penicillin blood level maintained by this form of the antibiotic is high enough to prevent streptococcic infection for a period of one month. Thus, a single injection of 1,200,000 units in 2 cc. of vehicle may be given every 28 days for protection. This method of prophylaxis has some very real advantages. In the first place, the physician knows that his patient is taking his medication properly. In no form of oral medication can the doctor be certain that the patient is taking a drug regularly. Prophylaxis with benzathine penicillin removes the necessity for daily medication.

---

16. Stollerman, G. H., and Rusoff, J. H.: Prophylaxis Against Group A Streptococcal Infections in Rheumatic Fever Patients: Use of New Repository Penicillin Preparation, J. A. M. A. 150: 1571 (Dec. 20) 1952.

The total cost is about $30 per year per patient, a small fraction of the cost of daily medication. Finally, comparatively few penicillin reactions have been observed with benzathine penicillin. On the other hand, one deterrent to its use is the severe pain produced at the site of injection for a day or two thereafter. Until they are replaced by more effective drugs, sulfadiazine and penicillin are today the most effective prophylactics against rheumatic fever.

THERAPY

The treatment of rheumatic fever may be broken down into four stages: first, treatment of acute streptococcic infections; second, treatment of the active phase of the disease; third, treatment of the patient during convalescence; and fourth, treatment of the patient in the late stages of the disease when cardiac involvement occurs.

Active streptococcic infection should be diagnosed as soon as possible and eradicated in every patient at once. As sulfonamides are bacteriostatic and not bactericidal, they should not be used therapeutically. On the other hand, penicillin is most effective and should be given early and in therapeutic doses orally or by injection. The oral dosage is 200,000 units four times daily for children, or 300,000 units four times daily for adults, for five days, followed by three doses daily for an additional five days. The dosage by injection is 300,000 units of procaine penicillin with aluminum monostearate in oil intramuscularly every three days for three doses for children and 600,000 units for each of three injections for adults.

Broad-spectrum antibiotics, such as oxytetracycline (Terramycin), chlortetracycline (Aureomycin) and tetracycline may prove equally effective in eradicating streptococcic infections in rheumatic patients. Preliminary studies in our laboratory indicate that oxytetracycline, tetracycline, erythromycin, and chlortetracycline exert the greatest effect on beta hemolytic streptococci in vitro. The active phase of rheumatic fever requires bed rest, a highly nutritious diet, and other supportive agents generally in use in infectious diseases. There is no therapeutic measure that can be considered curative. The time-honored salicylates are still the drugs of choice, and the two easiest forms to administer are aspirin and sodium salicylate. These drugs can be given in large doses as tolerated—up to 8 gm. per day for a 12-year-old child of average weight. It may be necessary to add sodium bicarbonate to lessen gastric disturbances. As *p*-aminobenzoic acid tends to increase the salicylate concentration in the blood when the two drugs are given together, the use of such a combined drug may result in greater efficacy than when the salicylates are used alone.

The use of cortisone and corticotropin (ACTH) must be discussed. The best recent report on this subject is that of Massell.[17] It would appear that the final evaluation of these medicaments in rheumatic fever is yet to be made. There are those who believe that the drugs shorten the period of acute illness, lessen its severity, and decrease the likelihood of cardiac complications. There is little doubt that the symptoms of the acute process are suppressed. It is still too soon to evaluate the effect of these drugs on cardiac involvement. If cortisone and corticotropin were completely innocuous, there would be little reason for withholding them, but they are capable of producing severe reactions in the dosages necessary to achieve desired therapeutic effects. Hence the utmost caution should be exercised in their administration.

The management of congestive heart failure during the acute phase of rheumatic fever poses a serious problem. Should digitalis be given? Yes, and in adequate dosage, for it has recently been shown that many failures of digitalis therapy in children were due to the fact that children require a larger proportionate dosage than adults. The management of the convalescent stage of rheumatic fever is characterized by watchful waiting. The physician must be sure that there is no longer any evidence of activity. There must be no fever, no joint symptoms, no chorea, and no skin lesions; the pulse must be normal; and the various laboratory findings should return to normal values. Ambulation is begun as therapy is withdrawn. Some men recommend the continuation of salicylates for a minimum of six months, even after ambulation has been achieved. Getting the patient up and around must be a slow, gradual, and careful procedure. At this time, perhaps more than any other, it is essential to keep a close vigil in search for the minor changes that may indicate recrudescence of the disease.

It is my belief that institutional care, particularly in Miami, Fla., is extremely beneficial. There are fewer recurrences and less severe complications. Usually the period spent in bed is markedly less than that which might be expected in temperate areas; instead of months, it is usually measured in weeks. Instead of large doses of aspirin, we have used only moderate doses (usually not over 60 grains [2 gm.] daily).

Institutional care has the advantage that the children can be watched carefully over a long period of time and be provided with the necessary medical, nursing, educational, and psychological services especially geared to their individual condition and emotional make-up, so that they can return to their homes and become useful, contributing members of society.

Therapy in the late stages of rheumatic fever concerns itself with management of the cardiac and other complications of the disease. Congestive heart failure and subacute bacterial endocarditis occur frequently and are treated in the same way as when they occur in other forms of heart disease. The various forms of valvular involvement do not require active therapy until symptoms and signs appear. Here, the recognition of mitral stenosis, pure and uncomplicated, is of utmost importance, for this lesion best responds to surgical intervention. Cardiac catheterization can be most helpful in identifying those patients with rheumatic heart disease that can be benefited by surgery. Attempts also have been made to repair other valvular lesions. Undoubtedly, as new techniques are developed there will be a brighter future for many more rheumatic heart disease victims.

4250 W. Flagler St. (34).

---

[17] Massell, B. F.: Medical Progress: ACTH and Cortisone Therapy of Rheumatic Fever and Rheumatic Carditis, New England J. Med. **251**: 183 (July 29); 221 (Aug. 5); 263 (Aug. 12) 1954.

CONGENITAL RENAL POLYCYSTIC DISEASE

A CLINICAL AND THERAPEUTIC STUDY OF THREE HUNDRED SIXTY-SIX CASES

Howard B. Simon, M.D.
and
Gershom J. Thompson, M.D., Rochester, Minn.

Much prognostic pessimism has been associated with polycystic disease of the kidney. When the variability of the clinical manifestations and course of this not uncommon clinical entity is considered, the pessimistic prognosis is oftentimes unwarranted and unjust to the patient. The present study was undertaken to elaborate further on the various aspects and manifestations of the disease that, when properly evaluated, permit the physician to outline treatment more accurately and prognosticate in a given case.

PATHOGENESIS

The pathogenesis of polycystic disease is not completely understood. The various theories of etiology that have been proposed were summarized by Rall and Odel [1] under the categories of metabolic, inflammatory, neoplastic, and developmental defects. Since Rall and Odel covered this aspect of the condition, we will mention only two recent contributions. Experimentally, Bagg [2] has been the only one successful in producing a true polycystic kidney. He treated the abdomens of mice with unfiltered roentgen rays. He concluded that the tendency to congenital renal anomalies is inherited as a Mendelian recessive trait. Of interest in this regard is the fact that in two of our cases polycystic changes were demonstrable in horseshoe kidneys, an association previously reported by Botez.[3]

Several authors have expressed the belief that polycystic disease in the infant is distinct from the adult disease, differing pathogenetically as well as clinically. Lambert [4] reconstructed two infant and five adult polycystic kidneys and found that in the infant the majority of cysts were distended nephrons or enlarged portions of nephrons that were separated from their excretory tubules, thus forming a closed system not communicating with the pelvis. In the adult, on the other hand, some of the cysts were similar to the infant type, but many, tubular in origin, were connected to excretory tubules and the renal pelvis and still retained some functional ability. For this reason he expressed the opinion that patients with the adult type were able to live beyond infancy.

PRESENT SERIES

Our study consisted of 366 cases of polycystic disease of the kidneys seen during the years 1925 to 1944 inclusive, at the Mayo Clinic, with autopsy in 35 cases. These represent a clinical incidence of 1:2,438, and an autopsy incidence of 1:323 for the years under consideration. Cases in which the diagnosis seemed equivocal were excluded from our series. Clinical records including data obtained at the time of later visits were examined in all cases, and follow-up questionnaires were sent to all patients pertaining to the data with which this report concerns itself. We were thus able to secure reasonably complete information in the majority of cases despite the time interval since many of the patients were last seen or heard from.

AGE AND SEX

The age at time of the first examination at the clinic and sex distribution are outlined in table 1. Of the nine patients on whom the diagnosis was made during the first decade of life, six were less than 3 months old and the others were aged 1, 3, and 4 years respectively. The diagnosis was confirmed by autopsy or at surgical exploration in all but one of these cases, and in that case the diagnosis seemed certain on the basis of clinical and pyelographic evidence. As pointed out by Campbell,[5] the prognosis when the condition is diagnosed in infancy is poor; the majority of such patients die within three months after the onset of symptoms. This was true in all but one case in our series. Of the 13 patients whose condition was initially diagnosed between the ages of 66 and 74 years, 9 were then asymptomatic. The diagnosis was confirmed at autopsy or operation in eight of these patients, the remainder being verified on the basis of urographic and clinical data (fig. 1).

Bell,[6] in his review of autopsy series reported in the literature, found 59 patients less than 20 years of age, plus 28 stillborn infants, and 6 patients more than 70 years of age, to which he added autopsies on 22 persons less than 1 year of age, 14 stillborn infants, and 17 persons more than 70 years of age, 3 of whom were in their 10th decade. In our series 80% of the patients were in the fourth to sixth decades of life at the time of diagnosis, with the largest number appearing during the fifth decade. The average age was 44 years. The slight preponderance of males (55.5%) in our series is probably insignificant, as most writers agree that no sex predilection exists.

FAMILY HISTORY

A definite family history of polycystic disease was obtained in 66 cases, with a probably positive family history in 85 additional cases. For example, the father

---

From the Section of Urology, Mayo Clinic and Mayo Foundation (Dr. Thompson). Fellow in Urology, Mayo Foundation (Dr. Simon).

The Mayo Foundation is a part of the Graduate School of the University of Minnesota.

[1] Rall, J. E., and Odel, H. M.: Congenital Polycystic Disease of the Kidney: Review of the Literature, and Data on 207 Cases, Am. J. M. Sc. **218**: 399-407 (Oct.) 1949.

[2] Bagg, H. J.: Hereditary Abnormalities of the Viscera: I. A Morphological Study with Special Reference to Abnormalities of the Kidneys in the Descendants of X-Rayed Mice, Am. J. Anat. **36**: 275-311 (Nov.) 1925.

[3] Botez, G., cited by Gutierrez, R.: The Clinical Management of Horseshoe Kidney: A Study of Horseshoe Kidney Disease, Its Etiology, Pathology, Symptomatology, Diagnosis and Treatment, New York, Paul B. Hoeber, Inc., 1934.

[4] Lambert, P. P.: Polycystic Disease of the Kidney: A Review, Arch. Path. **44**: 34-58 (July) 1947.

[5] Campbell, M. F.: Clinical Pediatric Urology, Philadelphia, W. B. Saunders Company, 1951, p. 181.

and brother of one patient died of "kidney trouble" during the sixth decade of life, and seven siblings and five members of the mother's family of another patient had "kidney trouble" and high blood pressure. In 55 cases there was no family history of renal disease. In the remaining 160 cases a familial history of renal disease was not mentioned in the clinical history. It is assumed that the family history was probably negative in this respect in these cases.

As previously mentioned, Bagg [2] stated that congenital renal anomalies were inherited as a Mendelian recessive trait, and the literature contains numerous accounts of the familial tendency in polycystic disease. Crawford [7] cited one family in which the disease was traced through five generations with 17 of 40 members so afflicted, 7 of 9 siblings in the fifth generation having polycystic disease. In other series, 9 of 27 members in four generations [8] and 12 of 24 members of two generations in a family in which the disease could be traced back four generations [9] were reported. In one of our cases, the disease had manifested itself in three generations. The patient's sister had polycystic disease, her mother and four of her mother's five siblings had all died in their fifth decade of life of kidney trouble, and her 21-year-old son also had polycystic disease. She was unable to provide information concerning her maternal grandparents.

TABLE 1.—*Age and Sex Distribution of Patients with Polycystic Renal Disease*

Age, Yr.	Patients	%
0-9	9	2.5
10-19	4	1.1
20-29	32	8.7
30-39	82	22.4
40-49	125	34.2
50-59	82	22.4
60-69	25	6.8
70-79	7	1.9
Total	366	100.0
Mean	44.0 yr.	
Male	203	55.5
Female	163	44.5

One patient, not included in the present series because he was seen initially in 1949, nevertheless warrants description because his identical twin brother had succumbed to polycystic disease within two years of the similar death of our patient. The parallelism in their clinical courses was remarkable.

REPORT OF A CASE

A 36-year-old white man was seen at the Mayo Clinic in July, 1949, because of loss of weight, occasional nausea, and anorexia. Five years previously he had had one episode of colic in the left flank and gross hematuria, lasting two to three hours. His twin brother had several similar episodes of hematuria in 1942 and 1943, at which time the diagnosis of polycystic disease had been made elsewhere. He had high blood pressure, and finally, in 1948, at the age of 35 years, had succumbed after a "stroke." After the diagnosis of polycystic disease in his brother's case, urographic studies done elsewhere on our patient had disclosed similar polycystic changes. Since then, hypertension had increased in severity.

On admission blood pressure was 164 mm. Hg systolic and 120 mm. diastolic. Kidneys were enlarged bilaterally to the size of a grapefruit. Funduscopy revealed marked narrowing of his retinal arterioles with focal constrictions and slight hypertensive sclerosis. The value for blood urea was 72 mg. per 100 cc. and for hemoglobin 11.2 gm. per 100 cc., with an erythrocyte count of 3,300,000 cells per cubic centimeter. Urinalysis revealed albuminuria, erythrocyturia, and pyuria of grade 1 based on a grading of 1 to 4. The specific gravity of urine was 1.007. Excretory urography demonstrated bilateral delay and decreased function with diagnostic changes of polycystic disease. The patient was treated with transfusion and a high intake of fluid and discharged to go home. In November, 1950, he suddenly suffered from a vise-like substernal pain and was admitted to his local hospital in shock with a diagnosis of acute myocardial infarction. He recovered somewhat, but seven days later suddenly died.

At autopsy a dissecting aneurysm of the ascending thoracic and abdominal aorta with intimal tear at the root of the aorta and rupture into the pericardial sac with hemopericardium were found. The right polycystic kidney weighed 1,575 gm. and the left 1,275 gm.; almost all of the renal parenchyma had been destroyed. Myocardial hypertrophy and renal and cerebral arteriosclerotic changes, grade 2, were also noted.

Reason,[10] in 1933, reported the cases of identical twin sisters who had died at ages 43 and 51 years of polycystic disease. He also cited several other reports of polycystic disease occurring in twins.

CLINICAL DATA

Symptoms.—The clinical picture of polycystic renal disease is variable and depends on the stage when the patient presents himself for examination. The onset may be insidious, and the patient may be totally unaware of his affliction until a physician, during a routine checkup, discovers a renal tumor, hypertension, pyuria, or microhematuria and establishes the diagnosis. In some cases the kidneys are almost completely destroyed before symptoms are noted. In our series 133 patients had no symptoms referable to the polycystic disease at the time of initial diagnosis. In other patients symptoms either developed slowly or appeared suddenly and were severe with progressive renal failure and a rapid downhill course. The more commonly noted symptoms will be considered.

Pain was described as a dull or nagging ache by 130 patients. It usually was unilateral and probably due to the excessive weight of the kidney producing tension on the renal pedicle, increased intracystic pressure, intracystic hemorrhage, or mechanical pressure of the cysts on adjacent organs. Occasionally, pain was noted only during episodes of pyelonephritis. In 33 patients the pain was colicky in type, unilateral, and almost always associated with either gross hematuria and the passage of clots or with concomitant renal calculi. Thus, 163 (44.5%) of our patients complained of pain when initially examined. Of 75 patients in whom pain was not an initial complaint and in whom follow-up information concerning its presence or absence was available, 21 later had typical pain. Pain, then, usually occurs at some time in the majority of cases of polycystic disease, and it is by far the commonest associated symptom.

Gross hematuria, noted in 115 of our patients, was usually episodic, of brief duration, and precipitated in most instances by trauma or excessive physical exertion.

---

6. Bell, E. T.: Renal Diseases, ed. 2, Philadelphia, Lea & Febiger, 1950, p. 88.

7. Crawford, R. H.: Polycystic Kidney, Surg., Gynec. & Obst. **36**: 185-188 (Feb.) 1923.

8. Fuller, C. J.: Familial Polycystic Disease of the Kidneys, Quart. J. Med. **22**: 567-574 (July) 1929.

9. Cannon, J. F.: Hereditary Polycystic Kidney, Ann. Int. Med. **27**: 610-616 (Oct.) 1947.

10. Reason, C. H.: Hereditary and Polycystic Disease of the Kidneys, Canad. M. A. J. **29**: 612-615 (Dec.) 1933.

Associated renal colic, due to the passage of clots as previously mentioned, is often mistakenly diagnosed as nephrolithiasis until further investigation reveals the correct diagnosis. Of 94 patients questioned concerning the eventual appearance of gross hematuria, 23 (24.4%) reported affirmatively. Thus, it can be assumed that about one-half of the patients will have gross hematuria at some time during the course of their illness.

Seventy-seven patients (21.0%) gave a history of symptoms of urinary infection, such as frequency, dysuria, burning, chills, and fever; the diagnosis was confirmed either elsewhere previously or at the time of admission. Follow-up of symptoms in 77 patients showed that 13 later had symptoms of urinary infection, so that approximately a third of patients at some time suffered from urinary infection. With present-day chemotherapeutic and antibiotic agents this incidence will undoubtedly be lessened.

Table 2.—*Clinical Aspects in Relation to Prognosis in Polycystic Renal Disease*

	Patients		Lived 5 or More Yr.	
	Total	Traced	No.	Survival Rate, % *
Symptoms				
Asymptomatic †	89	72	43	59.7
Pain	163	128	82	64.1
Hematuria ‡	154	114	54	47.4
Infections §	170	130	69	53.1
Gastrointestinal	28	18	0	....
Blood Pressure				
Normal	152	129	88	68.2
Moderately elevated	118	88	46	52.3
Severely elevated	84	62	24	38.7
Not recorded	12	..	..	....
Laboratory				
Renal function				
Normal	187	156	133	85.3
Impaired	164	118	25	21.2
Not recorded	15	..	..	....
Hemoglobin				
Normal	253	196	136	69.4
Moderately decreased	73	57	19	33.3
Severely decreased	29	27	4	14.8
Not recorded	11	..	..	....
Total patients	366	288	160	55.6

* Based on traced patients. Inquiry as of Jan. 1, 1954.
† Patients with microhematuria and pyuria are excluded.
‡ 39 patients with microhematuria only and 115 with gross hematuria are included.
§ 93 patients with asymptomatic pyuria and 77 with symptoms of urinary infection are included.

The cases in which neither gross hematuria nor symptoms of urinary infection were evident, but in which examination of the urine revealed the presence of microhematuria or of pyuria with urinary infection, have not been included here. These cases will be considered later.

Gastrointestinal symptoms, such as nausea, vomiting, and anorexia, were reported by 28 patients (7.7%). Renal insufficiency and uremia, with loss of weight, weakness, easy fatigability, edema, and other signs of renal failure were invariably associated. These symptoms were relatively terminal in the disease, and their rarity in our series was primarily the result of diagnosis before their occurrence. Follow-up data were inadequate concerning the occurrence of these symptoms since they closely preceded the death of the patient and later correspondence usually revealed only the date of death without reference to the terminal clinical course.

Signs.—The frequent association of hypertension with polycystic disease was first pointed out by Braasch [11] in 1916. For the present discussion we arbitrarily classified the blood pressure of those patients whose systolic pressure exceeded 160 mm. Hg or the diastolic exceeded 90 mm. as moderately elevated, and that of patients whose blood pressure exceeded 200 mm. systolic and 110 mm. diastolic as severely elevated. The distribution of our patients accordingly is shown in table 2.

Fifty-five per cent of patients were found to be hypertensive, and 35 patients (50%) initially normotensive had elevated blood pressure at the time of reexaminations. It would appear, therefore, as if at least four-fifths of patients become hypertensive during the course of the disease. Palpable enlargement of the kidneys was demonstrated bilaterally in 187 patients (51.1%) and unilaterally in 98 patients (26.8%). Three of these had only a solitary kidney, the other having been surgically removed previously. Of the 81 patients in whom no enlargement was palpable initially, 24 later returned for examination, at which time 12 (50%) had palpable enlargement, either unilaterally or bilaterally. Thus, the vast majority of patients had palpable enlargement of at least one, and usually of both kidneys.

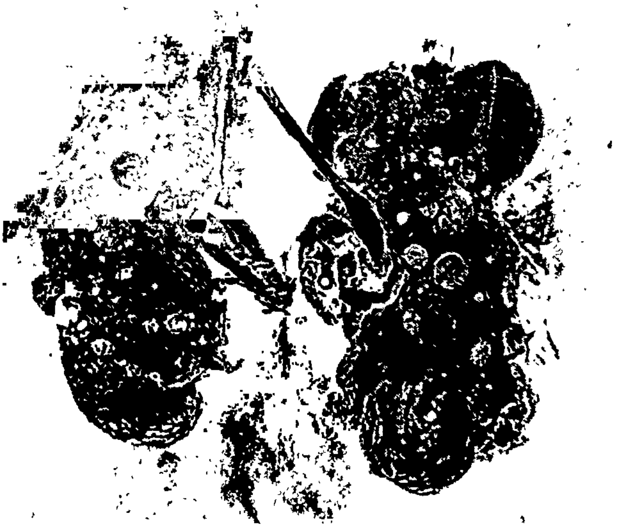


Fig. 1.—Polycystic kidneys from a 71-year-old man who died in renal insufficiency with uremia.

Laboratory Studies.—Albuminuria was found in the majority of patients and a specific gravity of urine of less than 1.010 was frequently noted. Microhematuria was found in 109 patients, of whom 39 had never experienced gross hematuria (table 3). Definite pyuria (10 cells or more per high-power field) was noted in 158 patients (43.2%), 93 of whom had never had symptoms of urinary infection. When the 77 cases of infection previously mentioned are included, it becomes apparent that at the time of their initial examination nearly half of our patients had previously had or then had evidence of infection.

Renal function was impaired in 164 (47.0%) of 351 patients whose renal function was evaluated. Tests em-

---

[11] Braasch, W. F.: Clinical Data of Polycystic Kidney, Surg., Gynec. & Obst. 23: 697-702 (Dec.) 1916.

and brother of one patient died of "kidney trouble" during the sixth decade of life, and seven siblings and five members of the mother's family of another patient had "kidney trouble" and high blood pressure. In 55 cases there was no family history of renal disease. In the remaining 160 cases a familial history of renal disease was not mentioned in the clinical history. It is assumed that the family history was probably negative in this respect in these cases.

As previously mentioned, Bagg [2] stated that congenital renal anomalies were inherited as a Mendelian recessive trait, and the literature contains numerous accounts of the familial tendency in polycystic disease. Crawford [7] cited one family in which the disease was traced through five generations with 17 of 40 members so afflicted, 7 of 9 siblings in the fifth generation having polycystic disease. In other series, 9 of 27 members in four generations [8] and 12 of 24 members of two generations in a family in which the disease could be traced back four generations [9] were reported. In one of our cases, the disease had manifested itself in three generations. The patient's sister had polycystic disease, her mother and four of her mother's five siblings had all died in their fifth decade of life of kidney trouble, and her 21-year-old son also had polycystic disease. She was unable to provide information concerning her maternal grandparents.

TABLE 1.—*Age and Sex Distribution of Patients with Polycystic Renal Disease*

Age, Yr.	Patients	%
0-9	9	2.5
10-19	4	1.1
20-29	32	8.7
30-39	82	22.4
40-49	125	34.2
50-59	82	22.4
60-69	25	6.8
70-79	7	1.9
Total	366	100.0
Mean	44.0 yr.	
Male	203	55.5
Female	163	44.5

One patient, not included in the present series because he was seen initially in 1949, nevertheless warrants description because his identical twin brother had succumbed to polycystic disease within two years of the similar death of our patient. The parallelism in their clinical courses was remarkable.

REPORT OF A CASE

A 36-year-old white man was seen at the Mayo Clinic in July, 1949, because of loss of weight, occasional nausea, and anorexia. Five years previously he had had one episode of colic in the left flank and gross hematuria, lasting two to three hours. His twin brother had several similar episodes of hematuria in 1942 and 1943, at which time the diagnosis of polycystic disease had been made elsewhere. He had high blood pressure, and finally, in 1948, at the age of 35 years, had succumbed after a "stroke." After the diagnosis of polycystic disease in his brother's case, urographic studies done elsewhere on our patient had disclosed similar polycystic changes. Since then, hypertension had increased in severity.

On admission blood pressure was 164 mm. Hg systolic and 120 mm. diastolic. Kidneys were enlarged bilaterally to the size of a grapefruit. Funduscopy revealed marked narrowing of his retinal arterioles with focal constrictions and slight hypertensive sclerosis. The value for blood urea was 72 mg. per 100 cc. and for hemoglobin 11.2 gm. per 100 cc., with an erythrocyte count of 3,300,000 cells per cubic centimeter. Urinalysis revealed albuminuria, erythrocyturia, and pyuria of grade 1 based on a grading of 1 to 4. The specific gravity of urine was 1.007. Excretory urography demonstrated bilateral delay and decreased function with diagnostic changes of polycystic disease. The patient was treated with transfusion and a high intake of fluid and discharged to go home. In November, 1950, he suddenly suffered from a vise-like substernal pain and was admitted to his local hospital in shock with a diagnosis of acute myocardial infarction. He recovered somewhat, but seven days later suddenly died.

At autopsy a dissecting aneurysm of the ascending thoracic and abdominal aorta with intimal tear at the root of the aorta and rupture into the pericardial sac with hemopericardium were found. The right polycystic kidney weighed 1,575 gm. and the left 1,275 gm.; almost all of the renal parenchyma had been destroyed. Myocardial hypertrophy and renal and cerebral arteriosclerotic changes, grade 2, were also noted.

Reason,[10] in 1933, reported the cases of identical twin sisters who had died at ages 43 and 51 years of polycystic disease. He also cited several other reports of polycystic disease occurring in twins.

CLINICAL DATA

Symptoms.—The clinical picture of polycystic renal disease is variable and depends on the stage when the patient presents himself for examination. The onset may be insidious, and the patient may be totally unaware of his affliction until a physician, during a routine checkup, discovers a renal tumor, hypertension, pyuria, or microhematuria and establishes the diagnosis. In some cases the kidneys are almost completely destroyed before symptoms are noted. In our series 133 patients had no symptoms referable to the polycystic disease at the time of initial diagnosis. In other patients symptoms either developed slowly or appeared suddenly and were severe with progressive renal failure and a rapid downhill course. The more commonly noted symptoms will be considered.

Pain was described as a dull or nagging ache by 130 patients. It usually was unilateral and probably due to the excessive weight of the kidney producing tension on the renal pedicle, increased intracystic pressure, intracystic hemorrhage, or mechanical pressure of the cysts on adjacent organs. Occasionally, pain was noted only during episodes of pyelonephritis. In 33 patients the pain was colicky in type, unilateral, and almost always associated with either gross hematuria and the passage of clots or with concomitant renal calculi. Thus, 163 (44.5%) of our patients complained of pain when initially examined. Of 75 patients in whom pain was not an initial complaint and in whom follow-up information concerning its presence or absence was available, 21 later had typical pain. Pain, then, usually occurs at some time in the majority of cases of polycystic disease, and it is by far the commonest associated symptom.

Gross hematuria, noted in 115 of our patients, was usually episodic, of brief duration, and precipitated in most instances by trauma or excessive physical exertion.

---

6. Bell, E. T.: Renal Diseases, ed. 2, Philadelphia, Lea & Febiger, 1950, p. 88.
7. Crawford, R. H.: Polycystic Kidney, Surg., Gynec. & Obst. **36:** 185-188 (Feb.) 1923.
8. Fuller, C. J.: Familial Polycystic Disease of the Kidneys, Quart. J. Med. **22:** 567-574 (July) 1929.
9. Cannon, J. F.: Hereditary Polycystic Kidney, Ann. Int. Med. **27:** 610-616 (Oct.) 1947.
10. Reason, C. H.: Hereditary and Polycystic Disease of the Kidneys, Canad. M. A. J. **29:** 612-615 (Dec.) 1933.

Associated renal colic, due to the passage of clots as previously mentioned, is often mistakenly diagnosed as nephrolithiasis until further investigation reveals the correct diagnosis. Of 94 patients questioned concerning the eventual appearance of gross hematuria, 23 (24.4%) reported affirmatively. Thus, it can be assumed that about one-half of the patients will have gross hematuria at some time during the course of their illness.

Seventy-seven patients (21.0%) gave a history of symptoms of urinary infection, such as frequency, dysuria, burning, chills, and fever; the diagnosis was confirmed either elsewhere previously or at the time of admission. Follow-up of symptoms in 77 patients showed that 13 later had symptoms of urinary infection, so that approximately a third of patients at some time suffered from urinary infection. With present-day chemotherapeutic and antibiotic agents this incidence will undoubtedly be lessened.

TABLE 2.—*Clinical Aspects in Relation to Prognosis in Polycystic Renal Disease*

	Patients		Lived 5 or More Yr.	
	Total	Traced	No.	Survival Rate, % *
Symptoms				
Asymptomatic †	89	72	43	59.7
Pain	163	128	82	64.1
Hematuria ‡	154	114	54	47.4
Infections §	170	130	69	53.1
Gastrointestinal	28	18	0	....
Blood Pressure				
Normal	152	129	88	68.2
Moderately elevated	118	88	46	52.3
Severely elevated	84	62	24	38.7
Not recorded	12	..	..	....
Laboratory				
Renal function				
Normal	187	156	133	85.3
Impaired	164	118	25	21.2
Not recorded	15	..	..	....
Hemoglobin				
Normal	253	196	136	69.4
Moderately decreased	73	57	19	33.3
Severely decreased	29	27	4	14.8
Not recorded	11	..	..	....
Total patients	366	288	160	55.6

* Based on traced patients. Inquiry as of Jan. 1, 1954.
† Patients with microhematuria and pyuria are excluded.
‡ 39 patients with microhematuria only and 115 with gross hematuria are included.
§ 93 patients with asymptomatic pyuria and 77 with symptoms of urinary infection are included.

The cases in which neither gross hematuria nor symptoms of urinary infection were evident, but in which examination of the urine revealed the presence of microhematuria or of pyuria with urinary infection, have not been included here. These cases will be considered later.

Gastrointestinal symptoms, such as nausea, vomiting, and anorexia, were reported by 28 patients (7.7%). Renal insufficiency and uremia, with loss of weight, weakness, easy fatigability, edema, and other signs of renal failure were invariably associated. These symptoms were relatively terminal in the disease, and their rarity in our series was primarily the result of diagnosis before their occurrence. Follow-up data were inadequate concerning the occurrence of these symptoms since they closely preceded the death of the patient and later correspondence usually revealed only the date of death without reference to the terminal clinical course.

Signs.—The frequent association of hypertension with polycystic disease was first pointed out by Braasch [11] in 1916. For the present discussion we arbitrarily classified the blood pressure of those patients whose systolic pressure exceeded 160 mm. Hg or the diastolic exceeded 90 mm. as moderately elevated, and that of patients whose blood pressure exceeded 200 mm. systolic and 110 mm. diastolic as severely elevated. The distribution of our patients accordingly is shown in table 2.

Fifty-five per cent of patients were found to be hypertensive, and 35 patients (50%) initially normotensive had elevated blood pressure at the time of reexaminations. It would appear, therefore, as if at least four-fifths of patients become hypertensive during the course of the disease. Palpable enlargement of the kidneys was demonstrated bilaterally in 187 patients (51.1%) and unilaterally in 98 patients (26.8%). Three of these had only a solitary kidney, the other having been surgically removed previously. Of the 81 patients in whom no enlargement was palpable initially, 24 later returned for examination, at which time 12 (50%) had palpable enlargement, either unilaterally or bilaterally. Thus, the vast majority of patients had palpable enlargement of at least one, and usually of both kidneys.

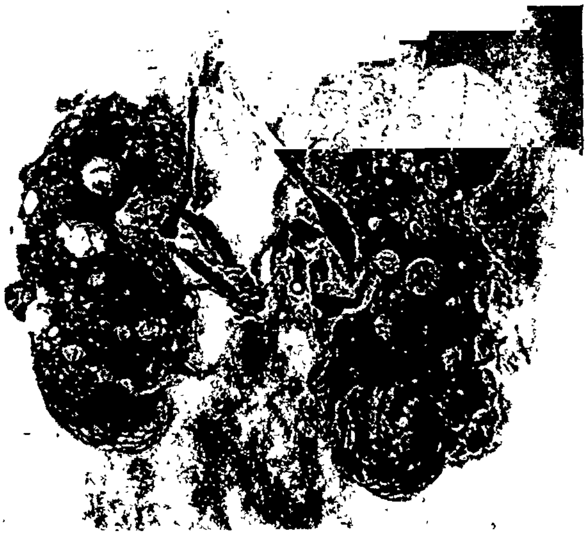


Fig. 1.—Polycystic kidneys from a 71-year-old man who died in renal insufficiency with uremia.

Laboratory Studies.—Albuminuria was found in the majority of patients and a specific gravity of urine of less than 1.010 was frequently noted. Microhematuria was found in 109 patients, of whom 39 had never experienced gross hematuria (table 3). Definite pyuria (10 cells or more per high-power field) was noted in 158 patients (43.2%), 93 of whom had never had symptoms of urinary infection. When the 77 cases of infection previously mentioned are included, it becomes apparent that at the time of their initial examination nearly half of our patients had previously had or then had evidence of infection.

Renal function was impaired in 164 (47.0%) of 351 patients whose renal function was evaluated. Tests employed were determination of blood urea in 302 cases, the phenolsulfonphthalein excretion in 12 cases, or concentration of dye at the time of the excretory urogram in 37 cases. Follow-up determinations of blood urea were made on 63 of the patients who had normal values initially; 34 (54%) then had elevated values. Renal insufficiency thus may be considered a common occurrence as the disease progresses. No patient with renal impairment had normal values for blood urea later, although mild insufficiency persisted for many years in a few cases before progressing to renal failure and death.

---

[11] Braasch, W. F.: Clinical Data of Polycystic Kidney, Surg., Gynec. & Obst. 23:697-702 (Dec.) 1916.

Moderate or severe anemia was noted in 102 cases (28.7%) of 355 cases in which determinations of hemoglobin were carried out. Follow-up examinations on 66 patients who originally had normal values for hemoglobin revealed anemia in 25 (37.9%). In almost all patients anemia was associated with renal insufficiency and the increasing incidence of anemia with progression of the disease parallels closely the similar increase of renal insufficiency, as noted previously.

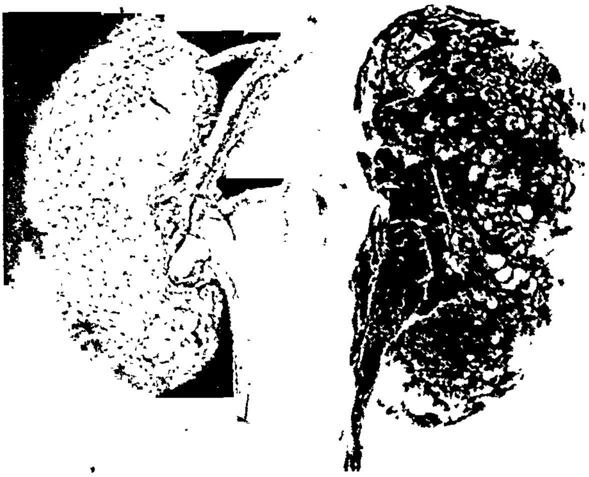


Fig. 2.—Unilateral polycystic disease in a 47-year-old man.

The characteristic urographic picture of polycystic renal disease, as described by Braasch and Emmett,[12] consists of extensive elongation and irregular enlargement of the calices, occasionally so extensive as to give a fantastic appearance to the pelvis. Unlike the picture seen with neoplasm or large simple cysts the pelvic outline itself is seldom greatly altered. The changes are usually bilateral, and this factor permits ready differentiation from large or multiple cysts or from neoplasm. Also, multiple calices are usually involved, often with a crescentic deformity of the caliceal tip due to the pressure of an adjacent cyst. Retrograde pyelography, by virtue of clearer visualization and more complete filling, will frequently permit a correct diagnosis when the excretory urogram is equivocal. When the urographic changes are largely unilateral, confusion with multiple simple cysts or renal neoplasm is possible. A unilateral occurrence has been established in approximately 8% of cases of polycystic renal disease by Bell,[6] in whose series 8 of 14 such cases occurred in adults. Polycystic changes may develop in time in the other kidney in many cases in which clinical evidence indicates unilateral involvement. This is particularly likely to occur after nephrectomy. At autopsy in 3 of our 35 cases the disease was unilateral; 2 of the patients were adults (fig. 2).

Urographic studies, either excretory urography or retrograde pyelography, were employed in 240 cases and were diagnostic in 189 of these cases (78.8%). Ten of the 51 patients whose condition was urographically indeterminate at first later had urographic studies at which a diagnosis of polycystic disease was made. The 126 patients on whom urographic studies were not performed were almost without exception patients with elevated values for blood urea that precluded excretory urography, and the clinical diagnosis was sufficiently evident so that urographic studies were unwarranted.

TABLE 3.—*Laboratory Data in Three Hundred Sixty-Six Cases of Polycystic Renal Disease*

Test and Finding	No. of Cases
Urinalysis	
Microhematuria	109
Pyuria	158
Renal function	
Normal	187
Impaired	164
No test	15
Total	366
Hemoglobin	
Normal (11 gm. or more per 100 cc.)	253
Moderately decreased (8-11 gm per 100 cc.)	73
Severely decreased (less than 8 gm. per 100 cc.)	29
No test	11
Total	366
Urography	
Diagnosis confirmed by excretory urogram	131
Diagnosis confirmed by retrograde pyelogram	58
Indeterminate result	51
No studies	126
Total	366
Associated calculi	
Unilateral	31
Bilateral	3
None	267
Unknown	65
Total	366

Associated nephrolithiasis was noted in 34 cases (14.1%) and was bilateral in 3 cases. The not infrequent occurrence of nephrolithiasis in polycystic renal disease is probably the result of urinary stagnation and infection with subsequent formation of calculi.

PROGNOSIS

The over-all survival statistics in our group of cases is outlined in table 2. The normal 5-year survival rate for a group of individuals 44 years of age is 96%,[12] and the 10-year survival is 90.5%. The 5-year survival in our series was 56% of 288 patients traced, and the 10-year survival was 38% of 248 patients traced. Obviously, the majority of patients with polycystic renal disease do not live a "normal" life span. Nevertheless, in our series 11 patients lived more than 20 years, and 1 patient was still living at the time of our study 26 years after the initial diagnosis. Prognostic criteria, therefore, are important. In table 2 the length of survival in our cases is related to some of the various clinical manifestations of polycystic renal disease.

---

[12] Braasch, W. F., and Emmett, J. L.: Clinical Urography: An Atlas and Textbook of Roentgenologic Diagnosis, Philadelphia, W. B. Saunders Company, 1951, p. 414.

The patient who is asymptomatic or complaining only of lumbar pain tends to fare better from the standpoint of longevity than the patient with urinary infection. However, the survival rate of the latter undoubtedly will be improved with use of modern antibiotic agents. Actually, since symptoms were multiple in most cases, these figures are not pure ones for the symptom involved. In our series were 36 patients whose only symptom was pain; 89% survived five years after examination at the clinic. Survival rates of patients whose only symptom was infection or hematuria approximated closely the figures given in table 2. Why patients with pain should outlive asymptomatic patients can only be conjectured. The average age for the asymptomatic group was 45 years and for the "pain-only" group 44 years, so earlier diagnosis or younger patients are not the explanation. Hematuria is definitely an unfavorable symptom, indicating a somewhat more advanced stage of the disease with a poorer life expectancy. Gastrointestinal upset, associated with advanced renal insufficiency as it invariably is, is a most ominous symptom; all of our patients died within three years and only two were living beyond one year after diagnosis at the clinic.

Hypertension of any marked degree augurs poorly for the patient. Anemia also indicates a serious situation. However, the physician can best base his prognosis on the presence or absence of renal insufficiency as evidenced principally by the blood urea or other similar determination. In our series 85.3% of patients with normal renal function lived five years, whereas only 21.2% of the patients with renal insufficiency lived five years.

Thus, in the majority of cases it should be possible for the physician to prognosticate fairly accurately when all of these clinical aspects, and particularly the blood urea, are taken into consideration. However, the behavior of polycystic renal disease is often totally unpredictable, and any prognosis must be given cautiously and accepted with some reservation, as even the apparently sickest patient may occasionally survive well beyond the most optimistic expectation. The reverse, of course, is also occasionally true. Undue pessimism should certainly be avoided. Nine of our patients (25.7%) who came to autopsy had passed their 60th year and five of them were more than 70 years old at the time of death. In our series also were 32 patients 60 or more years old at the time of admission, so a normal life span is not unusual.

Death results most commonly from renal failure with uremia, myocardial infarction, cerebrovascular accident, or cardiac decompensation secondary to hypertensive cardiovascular disease. One-half of our patients who came to autopsy died accordingly, with renal insufficiency as the predominant cause, and the majority of follow-up reports of death listed these same causes most commonly.

TREATMENT

Nonsurgical.—Treatment of polycystic renal disease may be either surgical or nonsurgical, but in most cases nonsurgical treatment is adequate. Measures employed are largely supportive and are designed to relieve the usual complications of infection, renal insufficiency, anemia, and hypertension. Modern chemotherapeutic or antibiotic agents should be employed early in any systemic infection or at the first signs of urinary infection. A high daily intake of fluid should be encouraged, and a low-protein diet may be helpful. Transfusions are given if the hemoglobin becomes low. The patient should be encouraged to rest adequately and relieve the tensions of daily life in so far as possible.

Surgical.—The usually cited indications for surgical intervention and the procedures employed are as follows: (1) nephrolithiasis with pain or obstruction, for which pelviolithotomy and cyst puncture are usually performed; (2) renal or perirenal infection, for which nephrostomy and drainage with either cyst puncture or nephrectomy is needed; (3) severe spontaneous or traumatic hematuria, or intractable pain, necessitating either cyst puncture or nephrectomy; (4) impending renal insufficiency or increased hypertension without renal failure, for which cyst puncture may be of aid, and (5) associated neoplasm or tuberculosis, which requires nephrectomy.

Most of the surgically treated patients in our series have been reported on previously,[13] but because of longer follow-up now possible, data are included herein. Surgical exploration was incidental to other operations in all 17 such cases. Cyst puncture was performed on 28 patients and was repeated ipsilaterally on 2 of them 6 and 18 years later and contralaterally on 2 others 6 and 7 years later. Thirty patients underwent nephrectomy, three of whom had nephrectomy secondarily after a previous cyst puncture. Two additional patients had nephrectomies originally, with a cyst puncture on the contralateral kidney 6 and 15 years later, while a third patient had cyst puncture initially and contralateral nephrectomy 8 years later. Simultaneous heminephrectomy and cyst puncture were done in one case. Thus, excluding the 17 cases in which exploration only was performed, 62 patients underwent 69 definitive surgical procedures. There were two operative deaths; both patients had preoperative azotemia. Both deaths followed nephrectomy; one was due to postoperative ileus and renal insufficiency and the other to infection and renal insufficiency after removal of a pyonephrotic and polycystic kidney.

TABLE 4.—*Indications for Operation in Polycystic Renal Disease*

Purpose or Indication	Nephrectomy	Cyst Puncture	Nephrectomy and Cyst Puncture	Heminephrectomy and Cyst Puncture
Rule out neoplasm	12	12	1	..
Improve function or symptoms	4	8	4	..
Nephrolithiasis	2	1	1	..
Renal infection	4	1	..	1
Nephrolithiasis and infection	1	..	..	..
Hydronephrosis	1	1	..	..
Incidental to other operation	..	1	..	..
Not known (operation elsewhere)	6	8	..	..
Total	30	32	6	1

The indications for surgical intervention are listed in table 4. The commonest indication for operation was to rule out neoplasm; in two of these cases an associated hypernephroma was found. On the whole, the condition of the surgical group was better than that of the nonsurgical. In the surgical group the average age was 42.7 years, 23% had anemia, 35% hypertension and 24% renal insufficiency, whereas in the nonsurgical group the average age was 44.2 years, 29% had anemia, 61% hypertension, and 51% renal insufficiency. The over-all survival in the surgical group consequently was better. Of the 58 patients traced five years, 45 (77.6%) had lived five years.

---

[13] Walters, W., and Braasch, W. F.: Surgical Aspects of Polycystic Kidney: Report of Eighty-five Surgical Cases, Tr. Am. A. Genito-Urin. Surgeons 26: 385-393, 1933.

A comparison of the survival statistics of the two principal surgical procedures in regard to the various clinical manifestations of the disease is shown in table 5. Of three patients who underwent nephrectomy and cyst puncture procedures on the contralateral kidney, two are still living 12 and 17 years after the nephrectomy and the third died 21 years from the date of his initial procedure, the cyst puncture. The patient subjected to heminephrectomy and unilateral cyst puncture died eight years after operation.

Comparison of the subdivided surgical group is difficult because of the comparatively few surgical cases. Apparently the removal of a functionless, destroyed, or infected kidney of a patient with normal renal function, blood pressure, and hemoglobin does better his chances for survival. If abnormal conditions obtain that indicate a more advanced stage of the disease, most writers agree that nephrectomy is probably not indicated, particularly in cases of renal insufficiency. Our cases are too few in these respects to draw any valid conclusions.

TABLE 5.—*Comparison of Survival Rates After Nephrectomy and Cyst Puncture with Survival Rates in Nonsurgical Cases: Relationship of Clinical Signs* *

Type of Therapy	Total in Series	Renal Function		Blood Pressure			Hemoglobin		
		Normal	Impaired	Normal	Moderately Elevated	Severely Elevated	Normal	Moderately Decreased	Severely Decreased
Nonsurgical (average age, 44 yr.)									
Traced patients	230	111	105	91	76	56	151	48	24
5-yr. survival rate, %	50.0	82.9	20.0	57.1	53.7	39.3	64.9	29.2	12.5
Nephrectomy alone (average age, 40 yr.)									
Traced patients	28	21	7	19	5	2	21	4	2
5-yr. survival rate, %	82.1	95.2	42.9	94.7	40.0	50.0	90.5	50.0	50.0
Cyst puncture alone (average age, 45 yr.)									
Traced patients	26	20	6	15	7	4	20	5	1
5-yr. survival rate, %	69.2	85.0	16.7	93.3	42.9	25.0	75.0	60.0	....

* 4 patients treated with multiple surgical procedures are excluded from this analysis.

It would appear as if surgical intervention is rarely indicated in polycystic renal disease except for the complicating situations requiring it that were listed earlier. The cyst puncture, aside from some improved survival in the nonhypertensive group of patients, produced no remarkable results. In the presence of renal insufficiency, anemia, severe hypertension, or similar conditions, such surgery does not seem indicated. Recently[14] it has been shown that many of the cysts in adults are functioning elements and their puncture results in further depression of renal function. This observation bears out the previously cited findings of Lambert,[4] and lends support to our clinical findings in this regard. The symptomatic relief afforded by puncture is usually temporary. Incidental to other operations it may be well to do cyst puncture, but as a primary procedure, except for the circumstances enumerated earlier, results do not seem to merit even the minimal operative risk.

The removal of a functionally impaired or damaged kidney from a patient with apparently little or no involvement of the contralateral kidney and with normal renal function is probably indicated, but in the face of renal insufficiency, severe hypertension, or anemia, it would be difficult to justify such a procedure unless necessitated for other reasons. Needless to say, nephrectomy should never be done unless the function of the contralateral kidney has been ascertained preoperatively.

SUMMARY

The 366 cases of polycystic disease of the kidneys encountered at the Mayo Clinic in 20 years (1925 through 1944) were reviewed and follow-up data were obtained. The pathogenesis of renal polycystic disease is not entirely understood. It has congenital and familial aspects. Lumbar or upper abdominal pain, renal infection, hematuria, and gastrointestinal symptoms are the commonest symptoms of this disease. Hematuria and gastrointestinal symptoms indicate a poor prognosis, the latter being particularly ominous in this respect. In the majority of cases one or both kidneys will be palpably enlarged and moderate or severe hypertension will usually be present. Severe hypertension indicates an advanced stage of the disease.

The most reliable and consistent prognostic sign in our series was the presence or absence of renal insufficiency. Renal impairment, with or without anemia, indicated that the prognosis was particularly poor.

Operation usually is indicated only when complications require it. Occasionally, however, when only one kidney is primarily involved and is apparently functionless, its removal may add to the survival and comfort of the patient provided that the contralateral kidney is not impaired. Cyst puncture may occasionally be employed incidental to other surgical procedures, but, aside from the rare instances in which it is necessitated for the relief of symptoms resulting mechanically from the size of the cysts, we could demonstrate no valid primary indication warranting this procedure. The hope that this operation might prolong life in the presence of early renal insufficiency was not supported in this study.

We particularly wish to emphasize that it is not too unusual for a patient with renal polycystic disease to live an essentially normal life span. The prognostic factors discussed in this paper may permit the physician to so encourage his patient. We hope that undue pessimism concerning this disease will be less prevalent in the future.

---

[14] Patton, J. F., and Bricker, N. S.: Renal Function Studies in Polycystic Disease of the Kidney: A Preliminary Report, J. Urol. **72**: 285-292 (Sept.) 1954.

PNEUMONIA IN NEWBORN INFANTS

Alexander J. Schaffer, M.D., Milton Markowitz, M.D.
and
Anthony Perlman, M.B., B.Ch., Baltimore

Pathologists have recognized since late in the 19th century that pneumonia was responsible for the deaths of many newborn infants.[1] Since many who died were stillborn or died within the first few hours or days of life, it was obvious that a certain proportion must have acquired pneumonia in utero. Pediatricians have virtually ignored this observation. Pneumonia is seldom diagnosed; indeed, it is rarely considered as a possibility in the differential diagnosis of respiratory illness in the early neonatal period. In this report we shall attempt to demonstrate that this condition is recognizable, given a high enough index of suspicion, and that it is not invariably fatal. In addition, we suggest that some cases are preventable and that vigorous treatment may be lifesaving.

There is a considerable percentage of stillborn and newborn infants in whom evidence of inflammation of the lungs has been discovered in large series of consecutive autopsies. Browne [2] (1922) found it in 26% and Macgregor [3] (1939) in 32%. Hook and Katz [4] (1928) reported a figure as high as 51%. Since 1940 the incidences reported have been considerably lower. D'Esopo and Marchetti [5] (1942) found 7% of perinatal deaths due to pneumonia and Bundesen and collaborators,[6] (1952) approximately 8%. In one of the hospitals from which our data have been collected, 76 autopsies on stillborn and newborn infants were performed from 1951 to 1953. Pulmonary inflammation of some degree was found in 27 (35%), was considered a contributory cause of death in 7 (9%), and was the sole cause of death in 6 (8%). Therefore, we may assume that roughly 1 out of every 12 perinatal deaths is caused by pneumonia.

MATERIAL AND DIAGNOSES

In this study we have analyzed the data concerning 38 babies who died within the first month of life with inflammatory changes in the lungs. Of these, 25 died and autopsy done in one hospital, 13 in another. All had been examined repeatedly during life and detailed contemporaneous notes had been written. As 5 of the 38 infants were stillborn and 23 were liveborn and lived no longer than three days, we felt free to assume, following Potter,[7] that the cause of death in these was probably of intrauterine origin. These 28 were analyzed for possible etiological factors associated with intrauterine pneumonia. The remaining 10 died between the 4th and 28th day of life. In many of these, pneumonia was postnatally acquired.

For the study of the clinical characteristics of intrauterine pneumonia, the total of 38 cases was perforce drastically reduced. The five stillborn infants were omitted. The 10 who died after the third day of life were omitted, as were 13 more who demonstrated in addition to pneumonia at postmortem examination either hyaline membrane formation, intracranial hemorrhage, or congenital malformation. The remaining 10 cases were considered pure pneumonia, almost surely acquired in utero or in the birth canal. Although the series is small, the presence of accurate clinical notes makes it worthy of discussion. We shall also present the histories of two patients who recovered from what we believed to be congenital pneumonia.

We shall not discuss in this report, because of limitation of space, the clinical features of the many varieties of postnatally acquired pneumonia. That form due to aspiration of food or gastric contents is familiar to all. The varied manifestations of micrococcic pneumonitis have been thoroughly described in many reports.[8] The group caused by less usual organisms is exemplified by the communication of Miller and associates,[9] who have recently reviewed the literature and reported another case of Klebsiella pneumoniae (Friedlander's bacillus) in the newborn infant. Adams [10] has described epidemics of respiratory infection that he believes are caused by a virus. In general, the diagnosis of these postnatally acquired infections presents less difficulty. Before attempting to delineate a composite clinical picture of intrauterine pneumonia, we shall present a few representative case histories. The first is that of a stillborn infant, the next two of full-term liveborn infants, and the final two of premature liveborn infants.

REPORT OF CASES

CASE 1.—A full-term 8 lb. 5 oz. (3,770.5 gm.) female infant was stillborn. The mother was an obese 27-year-old primipara. Membranes ruptured spontaneously 47 hours before delivery. Total labor lasted three and a half hours, second stage one hour. Fetal heart was not heard when labor commenced. At birth the baby was flaccid, failed to breathe, and would not respond to any form of resuscitation. Autopsy showed widespread intrauterine pneumonia.

CASE 2.—A full-term 7 lb. (3,175.1 gm.) female infant was born to a 30-year-old primipara who developed marked intrapartum hypertension. Membranes ruptured, labor began but

---

From the Harriet Lane Home, the Johns Hopkins Hospital, and the Nursery Service of the Hospital for the Women of Maryland.

Pathological specimens and microscopic slides were reviewed by Dr. Ella Oppenheimer, Associate Professor of Pathology, the Johns Hopkins Medical School, and Dr. William V. Lovitt, Pathologist to the Hospital for the Women of Maryland.

Read before the Eighth Clinical Meeting of the American Medical Association, Miami, Fla., Nov. 30, 1954

1. Silbermann, O.: Ueber Septische Pneumonie der Neugeborenen und Säuglinge, Deutsches Arch. klin. Med. **34:** 334-351, 1884.

2. Browne, F. J.: Pneumonia Neonatorum, Brit. M. J. **1:** 469-471, 1922.

3. Macgregor, A. R.: Pneumonia in New-Born, Arch. Dis. Childhood **14:** 323-351, 1939.

4. Hook, H., and Katz, K.: Über angeborene nichtspezifische Pneumonie und Pneumonie der ersten Lebenstage nach Aspiration innerhalb der Geburtswege, Virchows Arch. f. path. Anat. **267:** 571-598, 1928.

5. D'Esopo, D. A., and Marchetti, A. A.: Causes of Fetal and Neonatal Mortality, Am. J. Obst. & Gynec. **44:** 1-22, 1942.

6. Bundesen, H. N., and others: Progress in Reduction of Needless Neonatal Deaths: Challenge to Health Officer and Medical Profession, J. A. M. A. **148:** 907-917 (March 15) 1952.

7. Potter, E. L.: Pathology of Fetus and Newborn, Chicago, Year Book Publishers, Inc., 1952.

8. Kanof, A.; Epstein, B; Kramer, B., and Mauss, I.: Staphylcoccal Pneumonia and Empyema, Pediatrics **11:** 385-392, 1953.

9. Miller, B. W.; Orris, H. W., and Taus, H. H.: Friedlander's Pneumonia in Infancy, J. Pediat. **31:** 521-527, 1947.

10. Adams, J. M.: Congenital Pneumonitis in Newborn Infants, Am. J. Dis. Child. **75:** 544-554, (April) 1948; Primary Pneumonitis in Infancy, J. A. M. A. **138:** 1142-1144 (Dec. 18) 1948.

progressed poorly, and after 38 hours cesarean section was performed. The infant was cyanotic at birth and gasped a few times only. In the Bloxsom apparatus respirations were established. At 3 hours respirations were grunting in character, but air exchange was good and no rales were heard. She was transferred to the Isolette incubator with oxygen at 2 liters per minute and high humidity. Penicillin and streptomycin therapy was begun. At 8 hours respirations were rapid and shallow and temperature rose to 102 F. Rigidity, then twitchings, appeared. Temperature rose to 104.6. Death occurred at 14 hours. Autopsy showed widespread pneumonia.

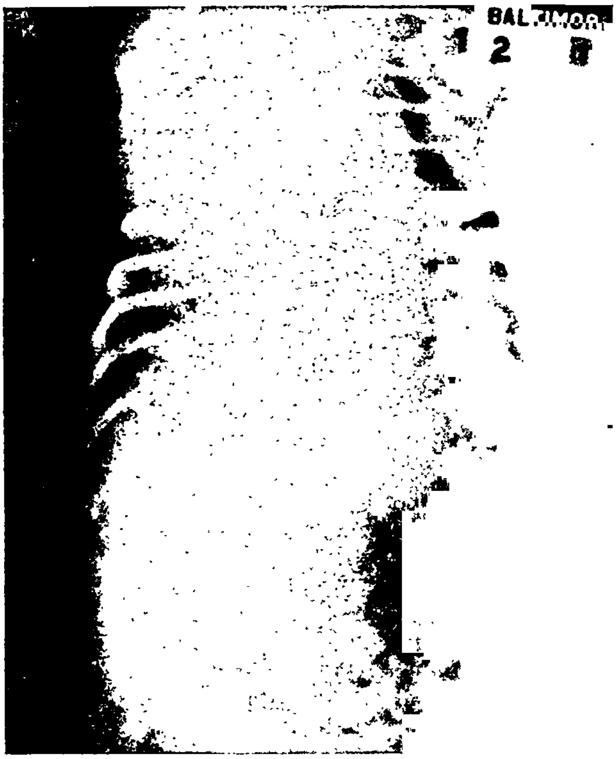


Fig. 1 (Case 3).—X-ray of chest showing massive consolidation of both lungs, which spares only the peripheral portions.

Case 3.—A full-term 9 lb. (4,082.3 gm.) female infant was born to a 30-year-old primipara. Pregnancy had been uneventful except that mother had a hemorrhoidectomy two weeks before term. Membranes ruptured four hours prior to delivery. Total labor lasted five hours, the second stage two hours. The infant cried and breathed spontaneously after birth, but the color looked pale and gray and the obstetrician placed her immediately in the Bloxsom apparatus. Two hours after birth respirations were noted to be grunting, and this increased over the next 10 hours. Slight cyanosis was visible even with the infant in the Isolette. At 16 hours color was grayish and cyanotic, temperature was 101.6 F, and respirations were rapid and shallow with slight sternal retraction. Percussion note was dull everywhere, and many fine rales were heard throughout. Air exchange was quite poor. Heart sounds were poor, and the liver edge descended to two fingerbreadths below the costal margin. Penicillin and streptomycin were given intramuscularly and chlortetracycline (Aureomycin) intravenously, all in full therapeutic dosage. Temperature rose to 102.2 F. X-ray showed very little aerated lung, limited to the periphery (fig. 1). Autopsy showed widespread pneumonia (fig. 2).

Case 4.—A premature 2 lb. 9 oz. (1,162.3 gm.) female infant was born to a multipara after 30 weeks of gestation. Membranes ruptured spontaneously 30 hours before delivery; labor was very short and without incident. Born at home, she is said to have looked well and to have cried and breathed spontaneously. At 2 hours of age, when admitted to the hospital, she showed facial edema and ecchymoses of face and extremities, and rapid respiration with mild retraction was observed. In the chest poor expansion, distant breath sounds, and fine rales at both bases were noted. Temperature remained 93.5 to 95 F throughout. Respirations became more rapid and grunting, but retraction did not increase. Death occurred at 10 hours of age. Autopsy showed marked atelectasis and widespread pneumonia.

Case 5.—A premature female infant was the result of the seventh pregnancy of a mother who had had four or five episodes of bleeding lasting one or two days since the fourth month of pregnancy. Membranes had ruptured eight days before delivery. Born in the 28th week in another hospital, the infant weighed about 2 lb. (910 gm.) and is said to have breathed spontaneously. Her color in the incubator was fair. At one and a half hours, she became apneic and nikethamide (Coramine) was given. One hour later she was admitted to the Johns Hopkins Hospital. She was deeply cyanotic, and thick mucoid secretion was suctioned from the nasopharynx. In the Isolette, color improved, but at 12 hours she became hypertonic and suffered apneic periods lasting one or two minutes. After this, cyanosis persisted even when she was in the Isolette with high environmental oxygen, and respirations, rapid and shallow, were accompanied by slight retraction. Air exchange was very poor throughout, but no rales were heard. Lethargy developed and increased, muscular twitchings appeared, cyanosis deepened, and respirations became abdominal and more labored and retraction a bit deeper. Temperature remained subnormal throughout. Death occurred at 27 hours

CLINICAL FINDINGS

After discarding all cases with coexisting intracranial hemorrhage, hyaline membrane disease, congenital malformation, and any other disorder that might confuse the picture we were left with 10 cases of pure pneumonia. Of these, six infants were full term, four were premature. The following observations were made, but because of the small size of the series any conclusions drawn from them must be considered tentative. None of the full-term infants appeared well or behaved in normal fashion at birth. They were described either as limp and

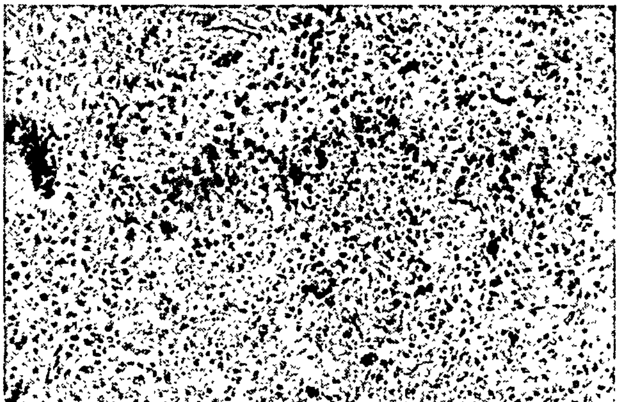


Fig. 2 (Case 3).—Photomicrograph of lung showing consolidation and polymorphonuclear infiltration (× 150).

pale, flaccid, of poor color, or cyanotic. Crying and spontaneous breathing were delayed in all but one, and in this one the color was so obviously poor that the obstetrician placed him in the Bloxsom apparatus at once. In one regular respiration was established after 2½ minutes, in two others only after 10 minutes. It was deemed necessary to place all the full-term infants in some form of resuscitating apparatus—Kreiselman, Rockette, or Bloxsom. The four premature infants were born at home or in another hospital; their immediate postnatal behavior is less well known. One infant was cyanotic at birth; the others were said to have been in good condition at birth. All were deeply cyanotic by the time of admission to hospital at 2, 2½, 3, and 10 hours of age respectively.

When spontaneous breathing was established, the pattern was usually described as rapid and shallow, at times as rapid and grunting. Irregularity, with periods of apnea, was noted as the condition worsened. Retraction was absent or minimal in most, having been recorded as moderate in only 2 of the 10 infants. It never approached in degree the retraction characteristic of full-blown hyaline membrane disease. Fever was present, surprising both in frequency and, at times, in height of temperature, in the full-term group. In one the temperature rose from 102 F at 4 hours to 104.6 at 28 hours. In another it rose to 105 F at 8 hours and remained high for the entire 3 days of life. In the third it reached 99.6 to 102.2 F; in the fourth and fifth it ran between 100 and 100.8 F; and in one it was normal for the entire 2½ days except for one reading of 100 F. In the premature infants, on the other hand, the temperatures were never elevated. They were usually markedly subnormal. Cough was never present in either the premature or the full-term infants. Physical signs in the chest were variable in both the mature and immature babies. In only four were the percussion note and breath sounds normal and adventitious sounds absent. Air exchange was deemed fair or poor in five. Fine rales were heard in three, rhonchi in two more. Tubular breathing was never heard. Signs pointing toward involvement of the central nervous system, in addition to the flaccidity and retardation of breathing and crying so often present just after birth, appeared frequently some hours later in life. They were observed in 6 of the 10 infants and consisted of persistent flaccidity in 2, hypertonicity or rigidity with twitching movements in 3, and frank convulsions in one. There was evidence of heart failure in two, in the form of poor heart sounds, cardiac enlargement, and increase in size of the liver.

X-ray and laboratory data are slowly accumulating but are in this particular group sparse. No roentgenograms were made on the premature and very sick mature infants, so that only two are available. One showed diffuse clouding of both lungs with very little aerated lung limited to the periphery of the thorax. The other showed an area of consolidation in the left upper lung field and scattered opacities spreading outward from the hilum in both lung fields. We have other roentgenograms of infants not in this series that demonstrated similar alterations (fig. 3). Systematic laboratory work has not been carried out on these infants until recently. Therefore, we have too few white blood cell counts and cultures to comment with assurance. Among these only one white blood cell count was definitely beyond the limit considered normal for newborn infants, that one being 31,900 per cubic millimeter. None were remarkably low. Nose and throat and blood cultures have thus far added little information. Considerably more work is required in this area, possibly utilizing techniques other than those in conventional use.

PROGNOSIS

Potter [7] and Snyder [11] have indicated that the outlook for the infant with prenatally acquired pneumonia is hopeless. With this opinion we do not agree. We shall demonstrate several histories of infants who recovered, in whom we believe this diagnosis is the correct one.

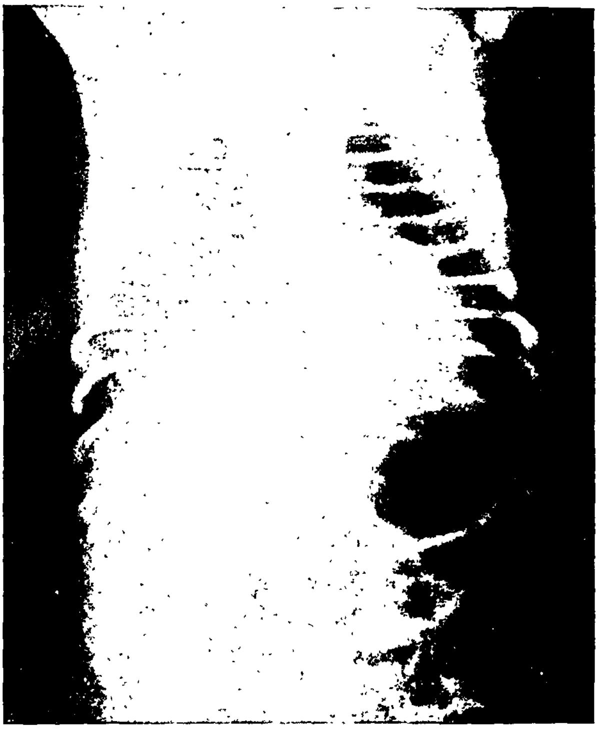


Fig. 3.—X-ray of chest showing much patchy infiltration in right lung, less in left lung.

Case 6.—A full-term 7 lb. 14 oz. (3,572.04 gm.) female infant was born to a 37-year-old multipara four days after the membranes had ruptured. Labor was induced by intravenously administered oxytocin (Pitocin) and lasted only three hours. For three days the mother had been given penicillin and streptomycin, and for the last 36 hours oxytetracycline (Terramycin) had been added. The mother had been given meperidine (Demerol) hydrochloride, 100 mg., and scopolamine, 0.6 mg., intravenously 23 minutes before delivery, following which she developed respiratory depression succeeded by hyperventilation. The infant at birth was extremely cyanotic and flaccid. She was placed in an incubator with high oxygen and humidity; the nasopharynx was suctioned; and penicillin and streptomycin therapy was started immediately. At 8 hours she was mildly cyanotic and sluggish, with hypoactive reflexes and a fair Moro response. Respirations were rapid and shallow, 45 to 60 per minute. Lungs were normal to percussion and auscultation. At 16 hours there was no change. By 33 hours her color was improved in the incubator but dusky when removed from the incubator, and respirations were 100 per minute. Poor air entry into the right lung posteriorly was noted. Respirations were unchanged in rate and character 24 hours later, but color and tone seemed improved. No rales but harsh breath sounds were heard at the base of the right lung. X-ray at this time revealed scattered foci spreading outward from the hilum and diffuse clouding of the base of the right lung (fig. 4*A*). Therapy with tetracycline (Achromycin), 50 mg. every 8 hours, was begun. At the fourth day of life she seemed slightly improved but respirations were unchanged. On the fifth day definite improvement was noted and from then on continued steadily until the ninth day when she appeared quite well. Repeat x-ray examination showed distinct clearing (fig. 4*B*). Fever ranged from 100 to 101.5 F throughout the first 5 days of life. The white blood cell count was 15,150 per cubic millimeter with 52% polymorphonuclear cells on the second day and showed no essential change on the ninth day. Nasopharyngeal culture grew a Micrococcus (Staphylococcus) pyogenes var. albus. Blood culture was sterile. Examination of the placenta revealed acute inflammation of the amniotic membranes with spread to the decidual layer.

---

[11] Snyder, F. F.: Obstetric Analgesia and Anesthesia: Their Effects upon Labor and Child, Philadelphia and London, W. B. Saunders Company, 1949.

CASE 7.—A 6 lb. (2,721.6 gm.) female infant was born to a 23-year-old primapara after 41 weeks of gestation. Pregnancy had been uneventful. Labor began spontaneously and lasted 13½ hours, the second stage lasting 1 hour. Membranes ruptured four hours before delivery. She was given no sedation later and four hours before. There had been no evidence of fetal distress. After elective low forceps extraction of the baby, crying did not occur for five minutes, and he was then placed in the Bloxsom apparatus. Examined at 6 hours of age he appeared depressed, of poor vigor, and with a weak, grunting cry. The skin and cord were meconium-stained. Respirations were rapid, 55 per minute, shallow, and with minimal retraction. Resonance over the chest was generally diminished. Air exchange throughout was poor, but breath sounds were audible everywhere. A few rhonchi but no rales were heard. He was transferred to the Isolette, with oxygen and high humidity, and streptomycin and penicillin therapy was begun. At 28 hours he became dusky when taken out of oxygen, respirations were 70 per minute, labored, but with minimal retraction. At this time there was marked dulness on the right, front, and back, and breath sounds were increased in this area. Many medium coarse rales were heard here. The left hemithorax was resonant, and only a few rhonchi were heard in the left front. Throat culture showed M. pyogenes var. aureus. The white blood cell count was 31,900 per cubic millimeter and the hemoglobin level was 19.5 gm. per 100 cc. X-ray showed diffuse clouding of both upper lung fields. Intramuscular administration of oxytetracycline was begun at this time.

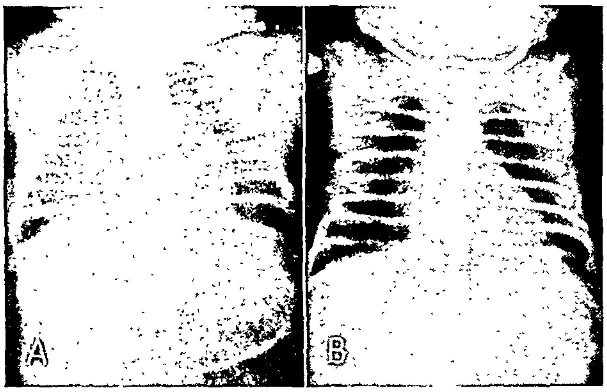


Fig. 4.—*A* (case 6), x-ray of chest showing widespread pneumonitis of both lungs diminishing from the hilum toward the periphery. *B* (case 6), same chest six days later, showing marked clearing.

At 48 hours the temperature was 100.8 F, but the infant appeared better. Respirations had slowed to 30 to 40 per minute, without retraction, and the color remained good out of oxygen. There was now some dulness to percussion over the left posteriorly, and the rales heard the day before over the right chest had disappeared. All signs disappeared by the third day of life, and the x-ray on the fourth day showed definite clearing.

ETIOLOGY AND PATHOGENESIS

The organisms that incite pulmonary inflammation in the fetal lung consist usually of one or more of those that are commonly found in the maternal vagina. How these bacteria arrive in the respiratory tract of the fetus is a much debated question. At this time we shall present our conclusions briefly, leaving for a further communication now under preparation a detailed exposition of the problem. Two facts, well-known to previous observers, are borne out in this series of 28 cases. 1. A remarkable number, 20 of 28, of the pregnancies or labors were abnormal in one or more respects. 2. Of the 28 infants, 16 were premature. This is approximately 11.5 times as many premature infants as one would expect in 28 consecutive deliveries. At least three different mechanisms appear to be operative in the pathogenesis of pneumonia of the newborn infant. The first is infection of fetal airways by the inhalation of contaminated amniotic fluid in the course of normally occurring intrauterine respiratory-like movements.[11] Contamination of amniotic fluid is usually the result of prolonged ruptured membrane time, according to Gosselin,[12] but is said to occur also after prolonged dry labor.[7] In 12 of our 28 cases time between membrane rupture and delivery exceeded six hours. In three it lasted 6 to 23 hours, in five, 23 to 47 hours, and in four, two to eight days.

The second pathogenetic mechanism is the initiation of exaggerated respiratory-like movements by some obstetric complication. This produces overdistention of portions of the fetal lung with amniotic contents, which may include meconium, and pneumonia follows. The factor commonly held responsible for exaggerated respiratory efforts of the fetus is anoxia. The table shows the distribution of obstetric complications that were present in this series.

Distribution of Obstetric Complications

	Full Term	Premature	Total
Prolonged ruptured membrane time alone..	0	3	3
Other obstetric complication alone..........	3	5	8
Combination of above.........................	6	3	9
No obstetric complication....................	3	5	8
	12	16	28

Of the 28 pregnancies or labors, 20 were abnormal in one or more respects. The complications, in addition to prolongation of labor and membrane rupture time, were numerous. They included breech presentation, toxemia, maternal bleeding, twinning, midforceps extraction, maternal diabetes, and tetanic contraction of the uterus.

We doubt that anoxia is the factor that sets off exaggerated respiration of the fetus. Snyder's [13] fetal rabbits ceased rhythmic respiration when their mothers were given low-oxygen breathing mixtures. Other observers have doubted the validity of this result, but none, as far as we can discover, have ever produced enhancement of fetal respiratory movements by the same method. Miller and Behrle's [14] recent observation that hypoxia causes depression rather than enhancement of respiration in the newborn human is further indication in this direction. Occlusion of the fetal circulation has been noted to produce gasping in many of these experimental animals. We suggest, therefore, that the trigger mechanism for gasping in utero resides not in blood chemical alterations such as low oxygen or high carbon dioxide but in some physical, possibly hemodynamic, factor. A common denominator of our long list of complications might be sudden impairment of fetal circulation. Another unanswered question in this group is the source of the bacteria that cause these pneumonias. Without prolonged membrane rupture time or prolongation of labor one would not expect the amniotic fluid to be contaminated. Might the lungs of some fetuses, otherwise normal, contain a few bacteria filtered from the blood stream during transient bacteremia, which would cause no trouble unless the lung is damaged or its circulation impaired?

---

[12] Gosselin, O., cited by Snyder.[11]

[13] Snyder, F. F., and Rosenfeld, M.: Direct Observation of Intrauterine Respiratory Movements of Fetus and Role of Carbon Dioxide and Oxygen in Their Regulation, Am. J. Physiol. **119**: 153-166, 1937.

[14] Miller, H. C., and Behrle, F. C.: Effects of Hypoxia on Respiration of Newborn Infants, Pediatrics **14**: 93-102, 1954.

For the group of eight infants in whose obstetric histories there could be discovered not the slightest deviation from normal, we are almost forced to the conclusion that transplacental infection is a third mechanism of pathogenesis. This is rendered more likely by the fact that one of three mothers had suffered exacerbation of an old osteomyelitis in midpregnancy and another had a hemorrhoidectomy two weeks before term. It is not impossible that the five very small premature infants may have acquired their infections in the birth canal rather than in the uterus, that their immature state permitted rapid extension of infection, and that their precarious balance between adequate and inadequate ventilation rendered a small amount of infection lethal.

PREVENTION

Injections of penicillin given to mothers whose membranes had been ruptured or whose labors had lasted an unusually long time failed to reduce total perinatal mortality, in Eastman's[15] experience, or in the incidence of neonatal pneumonia, according to Labate.[16] On the other hand, von Friesen[17] reported that small oral doses of sulfamerazine taken from the onset of labor until delivery reduced total perinatal mortality significantly. The question whether intrauterine pneumonia can be prevented completely or in large part by prenatal antibacterial medication is still in doubt. In our case 6, vigorous antibacterial therapy given the mother may have been of benefit. There is room for further work in this field, both by further determinations of concentrations attainable in amniotic fluid and cord blood after maternal administration of antibacterial agents and by large-scale clinical trials of combinations of drugs.

TREATMENT

Pneumonia in the early neonatal period is most likely to occur in infants (1) in cases where membranes ruptured more than six hours prior to delivery; (2) who were born after prolonged or complicated labors; (3) whose mothers suffered from toxemia or had bled profusely; and (4) who were premature regardless of the character of labor or pregnancy. Since the diagnosis is difficult to make, it would appear advisable to begin treatment on all of these shortly after birth. In this connection it must be pointed out that pneumonia was found at autopsy 13 times in this series as a complication of another serious disorder, intracranial hemorrhage, hyaline membrane disease, or congenital malformation of the respiratory or gastrointestinal tract. Since its presence was practically never suspected, perhaps it would be wise to begin vigorous treatment on all infants demonstrating signs of these conditions.

The combination of streptomycin and penicillin therapy commonly used in many clinics may or may not be the ideal choice. We have continued to use it for routine prophylaxis but always add a broad spectrum antibiotic when pneumonia is strongly suspected. On a number of occasions the improvement after the addition of chlortetracycline, oxytetracycline, or tetracycline has been gratifying. They are tolerated fairly well when given orally but often cause diarrhea or vomiting after several days. Injectable preparations are probably superior. Sulfonamides are also tolerated well, and small doses maintain high blood levels in the newborn infant. Theoretically they should be highly useful because of their potency against Escherichia coli and related gram-negative bacilli, as well as pneumococci and some micrococci (staphylococci) and streptococci. A few trials with sulfadiazine administered both orally and subcutaneously have been encouraging. Oxygen is needed for most infants but should be used only as long as absolutely required and never in concentration greater than 40%, because of the danger of retrolental fibroplasia in small premature infants. High humidity is almost surely helpful. Evidences of heart failure call for prompt digitalization. Oral feeding should be avoided while the infant is seriously ill.

SUMMARY

Pneumonia is the sole cause of death in 6% to 9% of all stillborn and newborn infants. In many instances, the disease has been acquired prenatally. Diagnosis of neonatal pneumonia is difficult and requires a high index of suspicion. The infants are commonly ill at birth. Respirations are rapid and shallow or grunting and are not accompanied by deep sternal or intercostal retraction. Cough does not occur. Fever is usually present in full-term infants but never or seldom in premature infants. Signs of central nervous system depression or irritation are frequent even when pathological studies show no brain involvement. The heart may fail. Physical signs may reveal much or little. Laboratory tests systematically performed may supply further help. The x-ray examination often reveals widespread areas of consolidation. Prognosis is not necessarily bad. Pulmonary inflammation in the newborn infant is often associated with premature rupture of membranes or prolongation or complication of labor. It also occurs when the obstetric course has been uncomplicated, chiefly in small premature infants. It is more rarely encountered in full-term infants in whom the history of pregnancy and labor has been without untoward incident. Aspiration of contaminated amniotic contents in the course of normal fetal respiratory-like movements may be one mechanism for the causation of pneumonia. Similar aspiration by abnormal exaggerated inspiratory efforts is almost surely another. Transplacental blood-borne infection may be a third. Preventive antibacterial treatment of mothers whose pregnancies or labors have been complicated in the aforementioned ways may be effective in reducing the incidence of pneumonia. Further study of this problem is required. Vigorous prophylactic treatment is advised for all infants in the three categories listed above, that is when membranes have been ruptured unduly long, when labor has been prolonged or complicated, and when premature infants are small. At the first suspicious sign of pulmonary involvement or when other serious disorders are present, a broad spectrum antibiotic should be administered in full therapeutic dosage, preferably by a parenteral route.

---

[15] Eastman, N. J.: Personal communication to the authors.

[16] Labate, J. S.: Study of Causes of Fetal and Neonatal Mortality on Obstetric Service of Bellevue Hospital, Am. J. Obst. & Gynec. 54: 188-200, 1947.

[17] von Friesen, B.: Study of Small Dose Sulphamerazine Prophylaxis in Obstetrics, Including Investigations on Transmission of Drug to Foetal Blood and Urine, Amniotic Fluid and Breast Milk, Acta obst. et gynec. scandinav. (supp. 3) 31: 1-112, 1951.

1109 St. Paul St. (2) (Dr. Schaffer).

CLINICAL PICTURE OF PYLORIC CHANNEL ULCER

ANALYSIS OF ONE HUNDRED CONSECUTIVE CASES

Julian M. Ruffin, M.D., David H. Johnston, M.D., Donald D. Carter, M.D.
and
George J. Baylin, M.D., Durham, N. C.

The clinical picture of an uncomplicated peptic ulcer is so characteristic that the diagnosis can be made by history alone. When complications develop, this picture changes. For illustration, the patient having a pyloric obstruction from a long-standing ulcer loses the familiar "pain-food-relief" pattern. Likewise, the patient having a perforated walled-off ulcer will experience a change in the usual ulcer picture. The pain becomes severer, may be aggravated by food, and often radiates to the back. These two complications of peptic ulcer are well recognized by the profession and readily diagnosed. It is not generally appreciated, however, that an ulcer located in the pyloric channel frequently gives rise to a bizzare syndrome, not in the least suggestive of ulcer and often missed entirely.

There are conflicting opinions in the literature regarding this type of ulcer. Bockus[1] states that gastric ulcers in or near the pyloric canal have symptoms resembling those of duodenal ulcer, and Butsch[2] concurs in this belief. Eusterman,[3] on the contrary, points out that the majority of patients having a channel ulcer have the *syndrome pylorique* consisting of a short, stormy course with intermittent pyloric obstruction and painful spasm of the pylorus, and this opinion is shared by Brethwaite and associates.[4] Gutmann and Hoffmann[5] report that ulcer of the pylorus gives rise to "the most variable symptomatology," with no rhythmicity or periodicity of ulcer distress. The following study was undertaken to determine if ulcers located in the pyloric channel give rise to a recognizable clinical picture, how the diagnosis may be established, and what form of therapy should be instituted.

DEFINITION AND PATHOLOGY

The pyloric channel is that portion of the stomach lying between the antrum and duodenum, approximately 1 cm. in length (fig. 1). A channel ulcer may be defined as a benign peptic ulcer occurring in this region or immediately adjacent thereto. Pathologically this ulcer is identical with a benign ulcer occurring in other portions of the stomach or duodenum. In figure 2 the location and gross appearances of such an ulcer are shown, and in figures 3 and 4 microscopic sections through this ulcer show it to be the usual benign peptic ulcer.

MATERIAL

This study is based upon an analysis of the clinical features of 100 consecutive patients with a channel ulcer. The diagnosis in each case was established by the demonstration of an ulcer crater within the pyloric channel, either by x-ray or at operation. There were 75 men and 25 women, whose ages varied from 19 to 83, with 78% being between the ages of 30 and 60. For comparison the clinical features of an additional 100 consecutive patients having an uncomplicated duodenal ulcer were studied. Each of these patients had radiological findings consistent with an active duodenal ulcer. They were all seen during the calendar year of 1953 and were all hospitalized. The analysis of their histories was carried out in the same manner as with the group having channel ulcer. During the year of 1953, 825 patients at Duke Hospital were given a diagnosis of peptic ulcers, 166 being gastric and 659 duodenal. Of this group, there were 40 patients in whom the diagnosis of channel ulcer was made, an incidence of 4.3%.

CLINICAL FEATURES

Channel ulcer is characterized clinically by nausea and vomiting, upper abdominal pain, and marked weight loss (table 1). In this series, nausea with vomiting was the most frequent symptom, occurring in 83 of the 100 cases. Often, it was nocturnal and episodic, occurring

---

From the departments of medicine and radiology, Duke University School of Medicine.

Read before the Eighth Clinical Meeting of the American Medical Association, Miami, Fla., Dec. 1, 1954.

The description of the pathological specimens in fig. 3 and 4 were supplied by Dr. David S. Johnson, Department of Pathology, Duke University School of Medicine.

This study was supported in part by grants from G. D. Searle & Co., Chicago, and the Lederle Laboratories Division, American Cyanamid Company, Pearl River, N. Y.

1. Bockus, H. L.: Gastroenterology, Philadelphia, W. B. Saunders Company, 1943, vol. 1, p. 375.
2. Butsch, W. L.: Ulcers of the Pyloric Ring, Proc. Staff Meet., Mayo Clin. **10**: 435 (July 10) 1935.
3. Eusterman, G. B., in discussion on Butsch.[2]
4. Brethwaite, S.; Weintraub, S., and Skoog-Smith, W. A.: Pyloric Canal Ulcer: An Analysis of 86 Cases, 53rd Annual Meeting, American Gastroenterological Association, Atlantic City, May 2 and 3, 1952.
5. Gutmann, R. A., and Hoffmann, R.: Ulcers of the Pyloric Canal, Arch. mal. app. digest. **25**: 1009 (Dec.) 1935.

before meals, immediately after meals, or having no relationshp to meals. Occasionally nausea with painless vomiting was the only symptom. Atypical ulcer pain was noted in 79 of the 100 cases. This pain, as a rule, was totally different from the usual ulcer pain in that it usually was colicky in nature, unrelated to meals, and unrelieved or actually aggravated by food. In many patients the pain was constant, severe, and required narcotics for relief. Weight loss in excess of 15 lb. (6.8 kg.) occurred in 54 patients. A comparison of the clinical features of channel ulcer with those of duodenal ulcer is shown in table 2. As might be expected, typical ulcer distress occurred in 88% of the patients in the duodenal ulcer group and in only 14% of the patients having channel ulcer. It will also be noted that nausea with vomiting was the most frequent symptom in the channel ulcer group and relatively uncommon in patients with duodenal ulcer. Significant weight loss occurred in more than half of the patients having a channel ulcer, whereas this was an unusual finding in the group with duodenal ulcer.

TABLE 1.—*Clinical Features of Channel Ulcer in One Hundred Cases*

Finding	No. of Cases
Nausea and vomiting	83
Episodic	
Immediately after eating	
Nocturnal	
Unrelated to meals	
Atypical ulcer pain	79
Colicky	
Unrelieved by food	
Unrelated to meals	
Precipitated by food	
Constant	
Significant weight loss	54
Hemorrhage	17
Typical ulcer distress	14
No pain	7

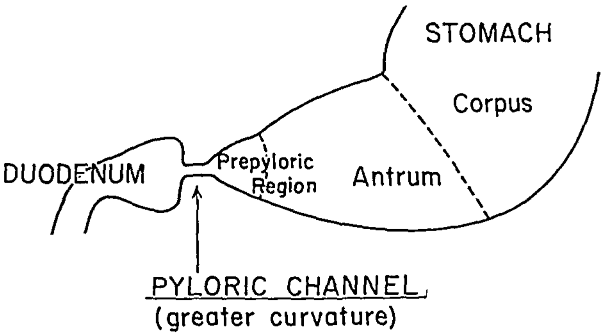


Fig. 1.—Diagram showing radiographic anatomy of the pyloric channel.

TABLE 2.—*Comparison of Clinical Features of Channel Ulcer and Uncomplicated Duodenal Ulcer*

Finding	Channel Ulcer (100 Cases)	Duodenal Ulcer (100 Cases)
Nausea and vomiting	83	10
Atypical ulcer pain	79	7
Significant weight loss	54	9
Hemorrhage	17	42
Typical ulcer pain	14	88
No pain	7	5

DIAGNOSIS

As intimated previously, the diagnosis of channel ulcer often is missed. In this series, an erroneous diagnosis was made in almost half of the patients. The commonest errors were in mistaking this syndrome for psychic vomiting or carcinoma of the stomach. Less frequently, it was confused with disease of the gallbladder or pancreas (table 3). A history of episodic nausea and vomiting associated with atypical upper abdominal distress should suggest the diagnosis of a channel ulcer. This is espe-

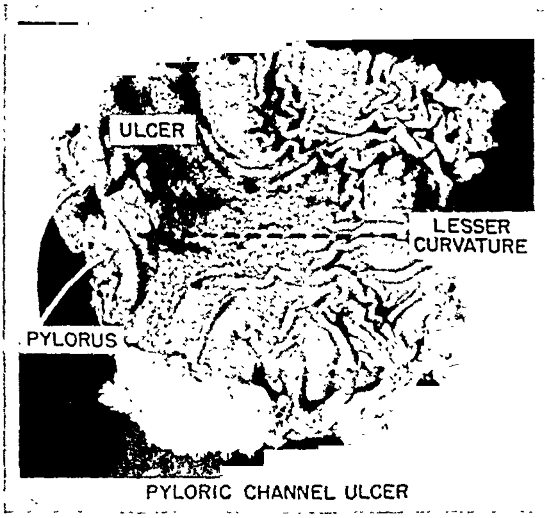


Fig. 2.—The stomach has been opened along the greater curvature. The cardiac end is to the right, pyloric end to the left. The entire circumference of the pylorus is indicated. The ulcer crater lies directly on the pyloric sphincter. It shows the characteristic "punched out" appearance with sharp, slightly overhanging margins.

TABLE 3.—*Original Diagnosis in One Hundred Consecutive Cases of Channel Ulcer*

Diagnosis	No. of Cases
Peptic ulcer	58
Psychic vomiting	22
Carcinoma of stomach	9
Gallbladder disease	3
Pancreatic disease	2
Miscellaneous	6
Total	100

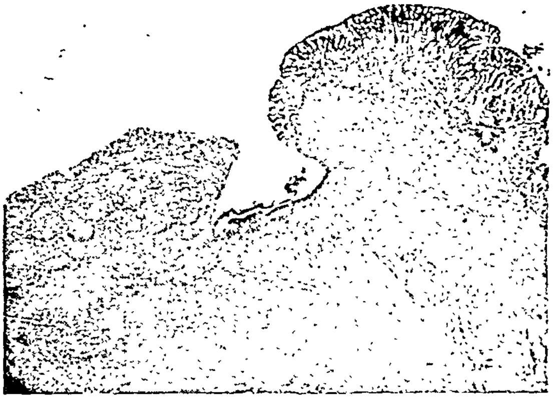


Fig. 3.—The illustration shows a complete section through a "channel" ulcer. Gastric mucosa is seen on the right side of the ulcer, duodenal mucosa on the left. In the lower right corner the muscularis is seen as a distinct layer, which becomes markedly inflamed, scarred, and distorted at the base of the ulcer. The ulcer rests directly on the pyloric sphincter (× 2.7).

cially true if these symptoms awaken the patient at night. One should remember that nausea with vomiting may be the only symptom of channel ulcer. The episodic and nocturnal character should distinguish the vomiting due to channel ulcer from that of psychogenic origin. Likewise this vomiting may be differentiated from that of pyloric obstruction, in that it consists of small amounts of gastric contents or of recently ingested food.

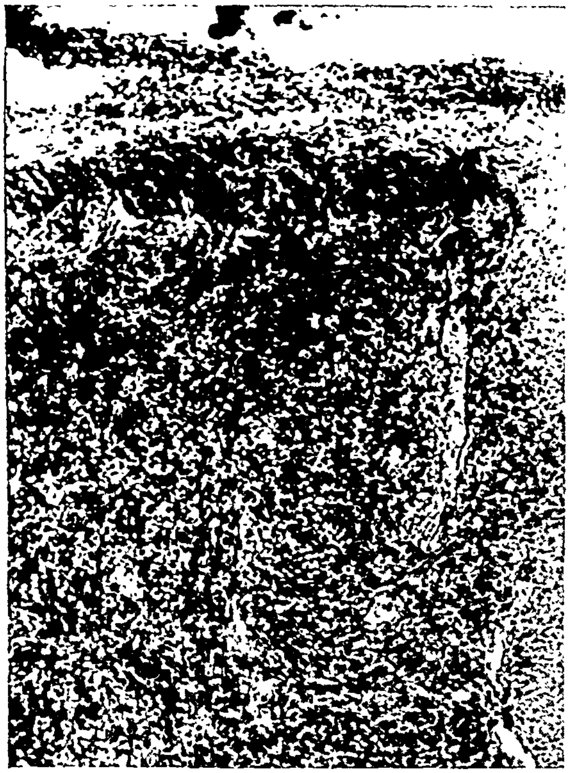


Fig. 4.—The illustration shows a higher magnification of the center of the ulcer crater. At the top is a thin layer of fibrin and polymorphonuclear leucocytes. The remainder of the picture shows the characteristic layer of granulation tissue made up of proliferating vessels, fibroblasts, and a heavy infiltration of lymphocytes and some plasma cells (× 74).

The physical examination is of little value in diagnosing this condition. The diagnosis of channel ulcer, although suspected clinically, should be confirmed radiologically. The important x-ray findings as described by Hampton and others [6] are: "1, lengthening of the pyloric sphincter, 2, distortion of the pyloric sphincter, 3, a niche located within the enlarged canal" (fig 5). In addition to these, we have noted disturbance in gastric evacuation in a large number of cases. Forty-six of the 100 patients with channel ulcer had some degree of gastric retention. In 27, the six-hour retention was estimated at 0 to 50%, in 9, 50 to 75%, and 10 patients had 75 to 100% gastric retention. In some cases gastric retention may be the only abnormal radiological finding. It is generally believed that the radiological diagnosis of channel ulcer is even more accurate than exploratory laparotomy.

TREATMENT

All patients having a channel ulcer should be hospitalized and treated intensively with a strict ulcer regimen. Overnight gastric suction and anticholinergic drugs, given parenterally, frequently result in dramatic relief of symptoms and eventual recovery. If pyloric obstruction from cicatricial narrowing is suspected, anticholinergic drugs should not be used. Channel ulcer is one of the severer forms of peptic ulcer; it may prove refractory to medical treatment and often requires surgery.

RESULTS

In this series of 100 patients having a channel ulcer, 62 recovered after intensive medical therapy, the remaining 38 requiring surgery. Contrary to a previously expressed opinion it has been our impression recently that the majority of these patients respond satisfactorily to medical treatment and that early diagnosis and intensive therapy have decreased the need for surgery.[7] Subsidence of gastric retention under treatment was inversely proportional to its severity. The six hour gastric retention, when estimated at less than 75%, subsided entirely in the majority of patients. On the contrary this retention, when estimated at 75% or more, did not subside under therapy in a single case.

REPORT OF CASES

The following case reports illustrate the pertinent aspects of channel ulcer.

Case 1.—A 29-year-old married white man was first seen at Duke Hospital in 1953, complaining of colicky epigastric pain, nausea, and vomiting of two weeks' duration. The pain occurred immediately after meals, awakened the patient at night, and was frequently relieved by vomiting. A weight loss of 15 lb. (6.8 kg.) occurred during this illness. Physical examination revealed no significant findings. Radiological study revealed only a 10% gastric retention at six hours. A diagnosis of "functional disturbance" was made, and the patient was referred to the psychiatric clinic. His symptoms gradually subsided but recurred one year later, at which time x-ray examination revealed a 40% gastric retention and a crater in the pyloric channel. The patient was then hospitalized and his symptoms rapidly subsided following intensive therapy, including night suction and parenterally given anticholinergic drugs (propantheline [Pro-Banthine] 20 mg. intramuscularly every six hours). X-ray studies of the stomach several weeks later revealed no abnormalities.

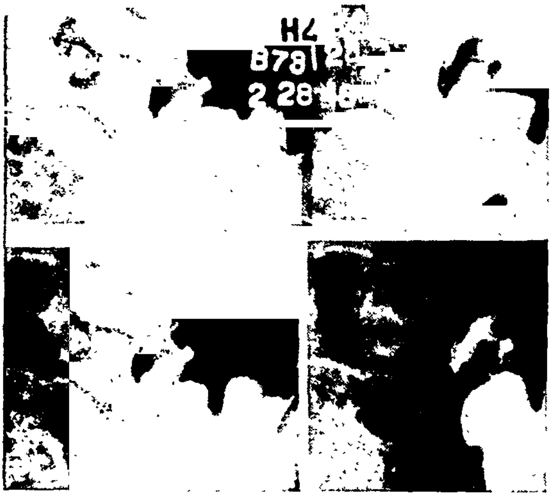


Fig. 5.—X-ray showing a large ulcer crater within the pyloric channel.

Comment.—The episodic and nocturnal character of his complaints, accompanied by a 15 lb. weight loss and a six hour gastric retention should have aroused the suspicion of channel ulcer.

---

[6] Hampton, A. O.: Incidence of Malignancy in Chronic Prepyloric Gastric Ulcerations, Am. J. Roentgenol. 30:473 (Oct.) 1933.

[7] Texter, E. C., Jr.; Baylin, G. J.; Ruffin, J. M., and Legerton, C. W., Jr.: Pyloric Channel Ulcer, Gastroenterology 24:319 (July) 1953.

CASE 2.—A 45-year-old housewife was admitted to Duke Hospital in 1953, with complaints of intermittent colicky epigastric pain and nausea and vomiting of 17 months' duration. The pain occurred without relation to meals, was aggravated by the ingestion of food, and was only rarely relieved by milk or soda. At times the pain was constant in nature, requiring morphine for relief. A weight loss of 30 lb. (13.6 kg.) was noted. A diagnosis of carcinoma of the stomach had been made by the referring physician. Physical examination revealed no significant abnormalities. X-ray studies showed a large ulcer niche in the pyloric channel with no evidence of obstruction. The patient's symptoms did not respond to conservative management, and subtotal gastric resection was performed. The diagnosis of benign channel ulcer was confirmed at operation.

Comment.—This case again illustrates the typical features of channel ulcer of marked severity, which was unsuspected for 17 months and later misdiagnosed as carcinoma of the stomach.

CASE 3.—A 53-year-old white man experienced a sudden hematemesis without preceding symptoms in March, 1954. He was hospitalized elsewhere, and x-ray studies were said to reveal "peptic ulcer." The patient responded to therapy and was asymptomatic until August, 1954, at which time he developed severe, colicky, right upper quadrant pain associated with nausea and vomiting. These symptoms occurred without relation to meals and frequently awakened him at night. Relief of pain followed vomiting of small amounts of recently ingested food. The patient was hospitalized five weeks after the onset of symptoms, and x-ray studies revealed a large ulcer niche in the pyloric channel with a 75% six hour gastric retention. He was treated with diet, antacids, and anticholinergic drugs parenterally (tridihexethyl [Pathilon] iodide 20 mg. intramuscularly every six hours), and gastric suction, with complete subsidence of symptoms. X-ray studies several weeks later revealed healing of the ulcer and subsidence of gastric retention.

Comment.—This patient illustrates subsidence of a marked degree of gastric retention under medical therapy alone and clinical recovery without surgery.

COMMENT

There is little information in the literature on the subject of channel ulcer. The incidence of channel ulcer, 4.3% of all peptic ulcers seen at Duke Hospital in 1953, is convincing evidence that such ulcers are not rare. Because of the bizarre symptomatology that is frequently associated with these ulcers, the correct diagnosis often is unsuspected and many of these patients are treated as psychiatric problems. The question can be raised of whether the atypical symptoms of channel ulcer are due to the fact that this ulcer is different from the usual peptic ulcer or are they merely due to its location? Pathological study of these ulcers support the contention that they are the usual peptic ulcers and that the symptomatology must be due to their location alone. Although such ulcers give rise to a bizarre picture, there are characteristic features of this syndrome that should suggest the diagnosis and there are typical radiological findings that should confirm it. These ulcers are difficult to manage and are often refractory to treatment; many require gastric resection. It is likely, however, that their early recognition and institution of proper treatment will increase the probability of recovery under medical management and lessen the need for surgery.

CONCLUSIONS

Channel ulcer is one of the severer types of peptic ulcer. It gives rise to a recognizable clinical syndrome with characteristic radiological findings. Strict medical treatment supplemented by gastric suction and parenteral use of anticholinergic drugs is highly effective in many cases. However, surgery is frequently required.

DIAGNOSTIC PROBLEMS

PRESENTATION OF CASE

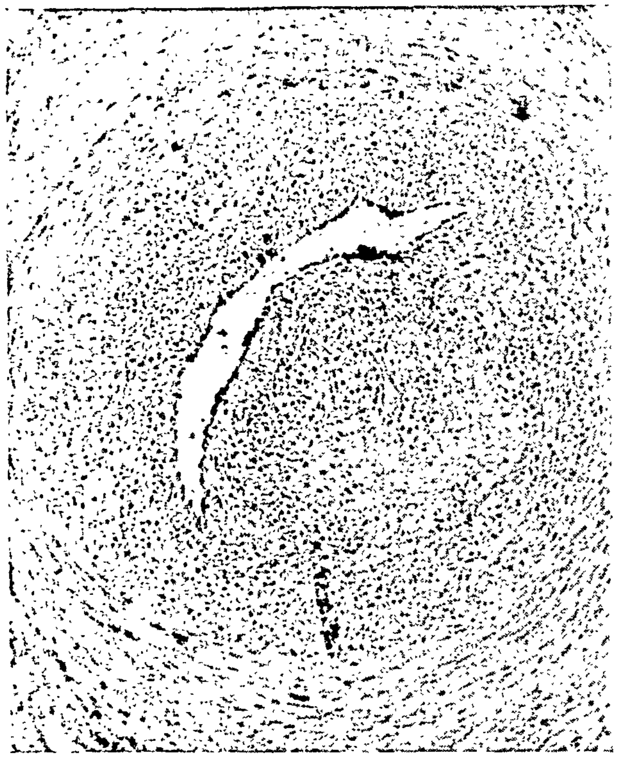
Calvin H. Plimpton, M.D.
and
S. Raymond Gambino, M.D., New York

A 30-year-old man was admitted on Nov. 17, 1954, because of abdominal pain and psychotic behavior of 24 hours' duration. About four months before admission he had a chest pain that responded to some "green pills" in two to three hours. There was no dyspnea. Three months before admission, he again had pain in the chest relieved by pills. He was then well until Oct. 28, when he had a sudden left-sided grand mal seizure. When he regained consciousness his left arm and leg felt numb, but by the next morning these symptoms had disappeared. He was first seen here on Nov. 2 in the neurology clinic, where the general examination was normal except for an equivocal Babinski's sign and questionable left-sided weakness and hyperreflexia. On the morning of Nov. 17, while on his way to the hospital for roentgenograms, he suddenly complained of abdominal pain and began to scream, strike the subway door, and tear off his clothes. A friend restrained him, but he then attempted to jump in front of a taxi. He was kept in the admitting ward for observation. Except for a temperature of 100 F, the general physical and neurological examination was normal. Hemoglobin level was 17.9 gm. per 100 cc., erythrocyte count 5,970,000 per cubic millimeter, and leukocyte count 11,950 per cubic millimeter, with 64% polymorphonuclear cells and 7% eosinophils. His urine specific gravity was 1.020, and the urine contained 1+ albumin, no sugar, and 25 to 30 leukocytes per high-power field. His blood sugar level was 182 mg. per 100 cc. He became more quiet, but in the afternoon was again agitated, tearing his clothes, and attempting suicide. His abdominal pain returned. His temperature was 97.6 F, his pulse rate was 56 per minute, his respirations were normal, and his blood pressure was 120/90 mm. Hg. There was epigastric tenderness without spasm or rebound tenderness. His leukocyte count was 11,800 per cubic millimeter, with 84% polymorphonuclear cells. His serum amylase level was normal. Roentgenograms showed a transverse heart, with clear lung fields and possibly some increase in the vascular markings. A roentgenogram of the abdomen showed gas in the colon and in one loop of the small intestine. He behaved irrationally and, despite being given 50 cc. of paraldehyde in divided doses, required restraints. His temperature rose to 103 F, and he was placed in the medical wards.

Physical Examination.—On physical examination on Nov. 18, his temperature was 100.6 F, his pulse rate was 80, his respiratory rate was 26, and his blood pressure was 110/84 mm. Hg. There was no generalized glandular enlargement. His abdomen was soft and not tender. The Mazzini test for syphilis was negative. The hematocrit was 57%, with a hemoglobin level of 21 gm.

From the Department of Medicine (Dr. Plimpton) and the Department of Pathology (Dr. Gambino), Columbia University College of Physicians and Surgeons, and the Presbyterian Hospital.

per 100 cc. The leukocyte count was 9,700 per cubic millimeter, with 64% polymorphonuclear cells. The sedimentation rate was 2 mm. in one hour. The urine specific gravity was 1.030, and the urine contained 3+ albumin, 1+ sugar, no acetone, no diacetic acid, and 4 to 7 leukocytes and 4 to 6 erythrocytes per high-power field. The serum sodium level was 131 mEq. per liter, potassium level 3.7 mEq. per liter, carbon dioxide level 16.9 mEq. per liter, and chloride level 104 mEq. per liter. His urea nitrogen was 27 mg. per 100 cc., and the nonfasting blood sugar level was 192 mg. per 100 cc. A blood culture, routine enteric agglutinations, and stool culture were negative. Urine inoculated into a guinea pig was subsequently reported as negative for leptospiral jaundice. He continued to be acutely psychotic. A lumbar puncture was normal in all respects but was followed by projectile vomiting, and the vomitus contained a few streaks of blood. On Nov. 19 he was much quieter, but was still febrile and vomiting profusely. His abdomen was distended, and there was tenderness and spasm in the epigastrium and right lower quadrant. His hemoglobin level was 17.7 gm. per 100 cc., and his leukocyte count 7,050 per cubic millimeter with 68% polymorphonuclear cells. His urine specific gravity was 1.023, and the urine contained 2+ albumin, no sugar, only an occasional leukocyte, and 4 to 8 erythrocytes per high-power field. Roentgenograms showed an atypical gaseous distention of the small intestine that could be explained by paralytic ileus or partial obstruction.



Photomicrograph of a branch of the left coronary artery, showing severe intimal sclerosis with almost complete occlusion of the lumen (hematoxylin and eosin, × 75).

Course.—At first a nasogastric tube and colon lavages seemed to help him, but on Nov. 20 his blood pressure suddenly became unobtainable. His hemoglobin level was 17.2 gm. per 100 cc., and his leukocyte count was 11,950 per cubic millimeter. His serum sodium level was 134 mEq. per liter, potassium level 4.1 mEq. per liter, carbon dioxide level 21.6 mEq. per liter, and chloride level 88.7 mEq. per liter. His urea nitrogen was 40 mg. per 100 cc. An electrocardiogram showed a sinus tachycardia but was otherwise normal. Blood, plasma, and arterenol (Nor-epinephrine) were given, and blood pressure gradually rose. His condition improved sufficiently for an exploratory laparotomy to be performed. At operation on Nov. 20, about 5 ft. of gangrenous small intestine were removed. There was no mechanical abnormality. The veins and arteries appeared thrombosed, though the superior mesenteric artery had a strong pulsation. Microscopically, the arteries appeared normal and the veins showed minute thrombi but with no evidence of organization. His temperature rose to 106.8 F and then remained almost normal. He was treated with anticoagulants. He had oliguria for several days and became icteric. His urea nitrogen rose to 206 mg. per 100 cc. and his serum potassium level to 6.7 mEq. per liter. The hyperkalemia was controlled by rectal instillations of potassium exchange resins. He seemed to improve, then died suddenly on Nov. 26.

ANATOMIC DIAGNOSIS

The heart showed severe coronary arteriosclerosis with multiple areas of almost complete occlusion (see figure). A large portion of the anterior descending branch of the left coronary artery was completely occluded by an organizing thrombus, and there was a small healed infarct at the apex of the left ventricle. The apparent age of the infarct corresponded with the history of mild chest pain four months prior to death. A mural thrombus had formed over the area of infarction, and the thrombus had undergone early organization. The patient had one large common mesenteric artery instead of separate superior and inferior mesenteric arteries. The medium-sized branches of the common mesenteric artery were occluded by emboli from the mural thrombus, producing the intestinal gangrene found at operation. The largest main branches of the common mesenteric artery were not occluded by emboli, explaining why the surgeon felt pulsations at the base of the mesentery. The small distal branches of the common mesenteric artery were likewise widely patent because the emboli were too large to enter these smaller vessels. This explains why the surgical pathologist failed to demonstrate thrombi or emboli in the specimen of resected intestine. Emboli from the mural thrombus in the heart were also found occluding branches of the renal arteries, and there were several renal infarcts of differing age. There was also an acute nephrosis, characterized by multiple small areas of necrosis and regeneration of tubular epithelium within the renal pyramids. The nephrosis was probably secondary to the prolonged hypotension and was responsible for the terminal renal failure. The mild terminal jaundice is perhaps best attributable to the extensive infarcts in the small intestine and kidneys. There were multiple small areas of acute encephalomalacia in the right superior parietal lobule, probably related to the terminal hypotension and hyperthermia. Although transient hemiparesis was an early symptom, no emboli, old cerebral lesions, or signs of cerebral arteriosclerosis were found.

COMMENT

This case illustrates the difficulties in the diagnosis of physical disease in the acutely disturbed patient. The cause for the psychosis was not found anatomically, and presumably falls into the group of toxic psychoses. We are also forcefully reminded that with arterial emboli the commonest cause is still a mural thrombus. Although this patient was unusually young, coronary arteriosclerosis is being seen in this age group. The frequently elevated blood sugar levels observed in this patient raise the possibility that he might have been a latent diabetic and hence his arteriosclerosis might have been somewhat accelerated. It is certainly dismaying that, except for the possible angina several months before, this myocardial infarct was not only "silent" clinically but also electrocardiographically. This case also illustrates the dangers of hyperkalemia in lower nephron nephrosis and the usefulness of potassium exchange resins in controlling the level of serum potassium.

CLINICAL NOTES

ETHYLENE DICHLORIDE POISONING

Roy S. Hubbs, M.D.
and
John J. Prusmack, M.D., Palo Alto, Calif.

In his treatment of patients who have ingested a toxic substance, the physician usually knows the proper steps to take in his efforts to alleviate suffering and prevent death. This is especially true of those materials more commonly swallowed by mistake, accident, or with suicidal intent. Some substances have been so incompletely studied or are so infrequently ingested that too little is known, other than general procedure, of effective methods of therapy. This is true of ethylene dichloride, a colorless liquid that was first prepared by four Dutch chemists in 1795. The substance, called "Dutch liquid" by its originators, was used as an anesthetic more than 100 years ago. Largely replaced by better anesthetics, it is now utilized rather extensively in industry, particularly in manufacture of rubber and some insecticides. It is an excellent solvent and is used to a considerable extent in hobby-craft in occupational therapy (in the uniting of pieces of plastic), particularly in hospitals for the treatment of mental illness.

A review of literature on this subject reveals a number of articles[1] on the effects of ethylene chloride and dichloride when contact occurs on living tissues. Corneal lesions are most frequently reported as resulting from inhalation by animals, though in further research with animals Erdmann[2] found lesions of the cornea following subcutaneous injection of ethylene chloride, and Kistler and Luckhardt[3] found corneal lesions following inser-

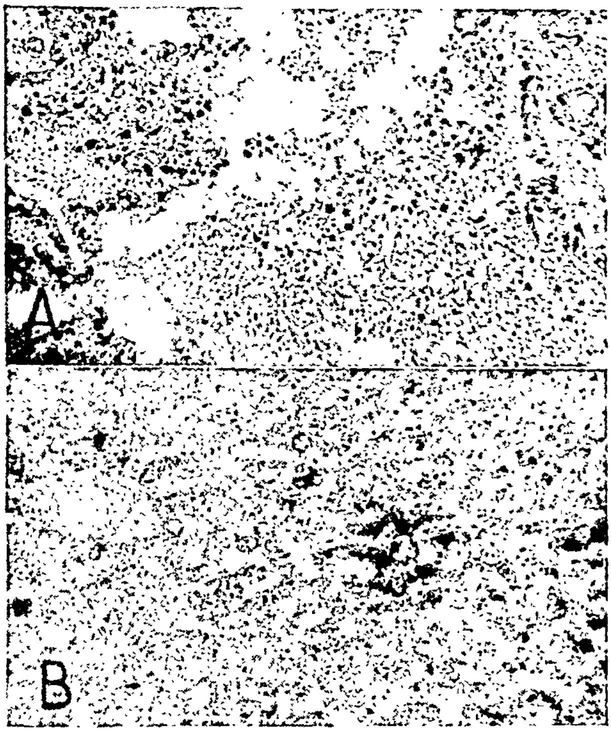


Fig. 1.—*A*, pulmonary hemorrhage and edema. *B*, fatty vacuolation of liver (fat appears dark in photomicrograph) (Sudan IV, × 145).

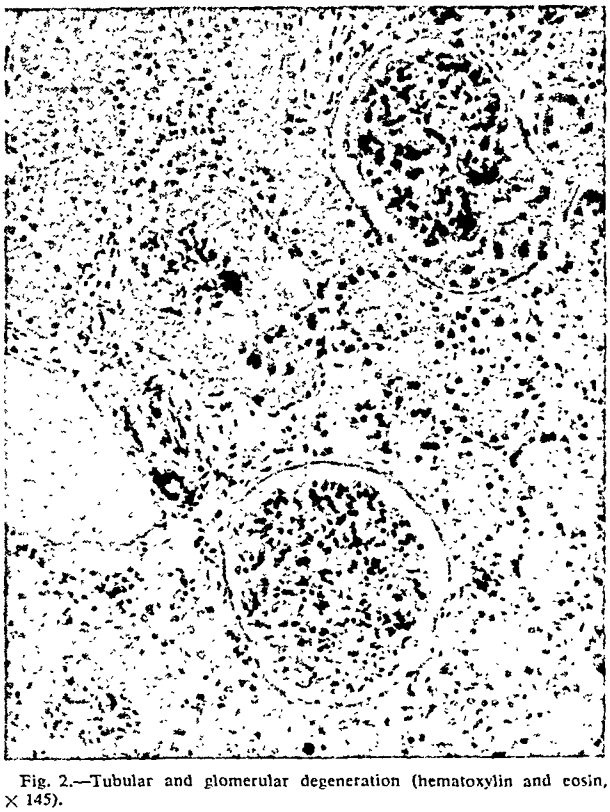


Fig. 2.—Tubular and glomerular degeneration (hematoxylin and eosin, × 145).

Chief, Professional Services, Veterans Administration Hospital, Palo Alto, Calif., and Member of the Visiting Staff, Department of Neurology, University of California School of Medicine, San Francisco (Dr. Hubbs); Manager, Veterans Administration Hospital, Palo Alto, Calif., and Assistant Clinical Professor of Psychiatry, Stanford University School of Medicine, San Francisco (Dr. Prusmack).

[1] Heppel, L. A.; Neal, P. A.; Endicott, K. M., and Porterfield, V. T.: Toxicology of Dichloroethane: Effect on Cornea, Arch. Ophth. **32**: 391-394 (Nov.) 1944. Dubois, R., and Roux, L.: Action du chlorure d'éthylène sur la cornée, Compt. rend. Acad. d. sc. **104**: 1869-1871 (June) 1887. Steindorff, K.: Ueber die Wirkung einiger Chlorderivate des Methans, Aethans, und Aethylens auf die Hornhaut des Tierauges, von Graefes Arch. Ophth. **109**: 252-264 (Oct. 2) 1922.

[2] Erdmann, P.: Ueber Augenveränderungen durch Aethylenchlorid, Klin. Monatsbl. f. Augenh. **14**: 370-371 (July-Dec.) 1912 (reported May 19, 1912).

tion of ethylene dichloride by stomach tube. This would seem to indicate that the production of corneal lesions does not entirely depend upon direct contact of the vapor upon the eyes. Careful search of both foreign and domestic literature has revealed comparatively few cases of ingestion of ethylene dichloride by human beings. Most of these resulted in death.

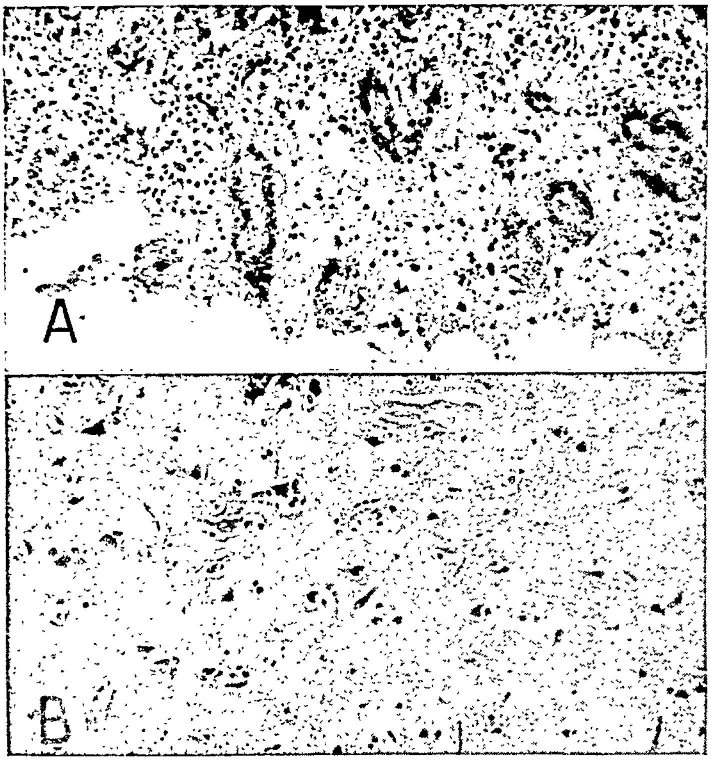


Fig. 3.—*A*, hemorrhage in gastric mucosa (hematoxylin and eosin, × 145). *B*, early toxic encephalopathy of the cerebral cortex, with prominent satellitosis (hematoxylin and eosin, × 145).

REPORT OF A CASE

At this hospital ethylene dichloride is used in occupational therapy as a part of treatment for patients with mental illness. We had the unfortunate experience of having a patient impulsively pick up a small container of ethylene dichloride and quickly swallow some of it, evidently thinking (as was true in certain other reported cases[4]) that the substance was an alcoholic drink. He was seen promptly by a physician who, judging by his story and the lack of signs of oral irritation and lack of odor on the patient's breath, concluded that nothing had been swallowed. The physician therefore at first administered no treatment. One hour and 45 minutes later the patient became violently ill, fell to the floor, and was found to be in severe shock, with cyanosis, pulmonary edema, and light coma. Positive pressure oxygen was administered with temporary prompt improvement of the patient, including lessening of the pulmonary edema and disappearance of the cyanosis. Gastric lavage was performed. For the next 12 hours the patient had intermittent vomiting and diarrhea, had lowered blood pressure, and developed severe albuminuria. Supportive measures were given, including the use of oxygen, blood transfusions, intravenously given glucose, ephedrine, cortisone, desoxycorticosterone, and adrenal cortical extract. In spite of treatment, the patient's condition continued to become worse, and he died 18 hours and 45 minutes after ingesting the ethylene dichloride.

Gross findings at autopsy included a high degree of cyanosis of all fingernails. The brain weighed 1,735 gm. There were edema and swelling with "pressure cone" markings and congestion of intracranial vessels. The left and right lungs weighed 540 and 500 gm. respectively. All but the anterior borders of the lungs were less than normally crepitant, and the cut surfaces of these areas were dark reddish-purple in color and exuded frothy reddish fluid. Such surfaces also revealed many small areas of dark red hemorrhage 2 mm. to 1 cm. in diameter. There were many petechial hemorrhages on the anterior surface of and on the left and right borders of the heart. Similar hemorrhages were present in the remainder of the external aspect of the heart, although less marked in degree than in the specifically mentioned areas. There were also a few petechial hemorrhages on the papillary muscles of the left ventricle. The spleen appeared normal except that the cut surface was darker than usual. Both the medulla and cortex of each kidney were also darker than usual. There were a few small petechial hemorrhages of the bladder serosa on its anterosuperior aspect, and the bladder mucosa was largely destroyed. The entire gastrointestinal tract, particularly the small intestine, was dark and cyanotic in appearance. There were many petechial hemorrhages in the mucosa of the stomach and entire small intestine; none were seen in the large intestine. The stomach was greatly enlarged and its contents largely gas.

Microscopically, the lungs showed scattered patches of hemorrhage and extreme vascular engorgement. In some areas the capillaries contained many leukocytes, mononuclear cells, and a fair number of large multinuclear cells resembling megakaryocytes. Many of the alveolar spaces were collapsed, and these in some areas showed abundant proteinaceous deposits (fig. 1*A*). The heart presented widespread interstitial edema, with prominence of interstitial nuclei. Cardiac vessels contained increased numbers of leukocytes; some were engorged with erythrocytes. The spleen showed congestion of the red pulp and a few patches of hemorrhage. The liver cells presented diffuse fine fatty vascuolation; cells about the central and sublobular veins contained larger fatty deposits (fig. 1*B*). Inflammatory cells were scattered throughout the sinusoids. Branches of the portal vein and some of the sublobular veins were engorged. There was a mild lymphocytic infiltration of some portal spaces. Both kidneys showed intense hyperemia throughout. The glomerular tufts presented

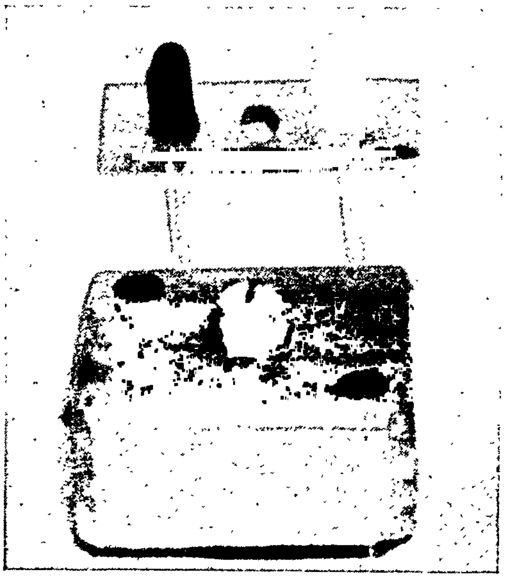


Fig. 4.—Ethylene dichloride container.

---

3. Kistler, G. H., and Luckhardt, A. B.: Pharmacology of Some Ethylene-Halogen Compounds, Anesth. & Analg. 8: 65-74 (March-April) 1929.

4. (*a*) Hueper, W. C., and Smith, C.: Fatal Ethylene Dichloride Poisoning, Am. J. M. Sc. 189: 778-784 (June) 1935. (*b*) Roubal, J.: Two Cases of Fatal Poisoning by Personal Ingestion of Symmetric Dichloroethane, Časop. lék. česk. 86: 203-206 (Feb. 21) 1947. (*c*) Ienistea, C., and Mezincescu, M. D.: Intoxication fatale par l'ingestion du chlorure d'éthylène, Bull. Acad. de méd. de Roumanie 86: 614-617, 1943.

an apparent increase of nuclei and a tendency toward thickening of the axial portions of the basement membrane. There were swelling and sloughing of the capsular epithelium. Proteinaceous fluid was precipitated in the capsular spaces. Tubular changes were more prominent than glomerular. The proximal convoluted epithelium was severely vacuolated, markedly swollen, and badly frayed. The epithelium of distal segments showed extensive degenerative changes, including pyknosis and sloughing. Scattered casts were present, including pigmented, hyaline, and granular varieties. In one area, the distal epithelium was dotted with dull, faintly greenish pigment granules, presumably bile (fig. 2). The bladder epithelium was almost totally lost. There was generalized submucosal hyperemia. Some small patches of fresh hemorrhage were noted in the perimuscular connective tissue. The mucosal surface of the stomach was dotted with small patches of hemorrhage, and portions of the surface epithelium were missing (fig. 3*A*). The brain showed increased oligodendroglia about the neurons in the cortex (satellitosis) (fig. 3*B*).

COMMENT

It has been noted by Hueper and Smith,[4a] Roubal,[4b] Ienistea and Mezincescu,[4c] Bloch,[5] Meurs,[6] and Keyser [7] that ingestion of ethylene dichloride has produced somewhat similar changes in each instance. These are some or all of the following changes: physical collapse, pulmonary congestion or edema, pneumonia, evidences of kidney damage, coma, and death. Lochhead and Close,[8] in addition to other results, found hyperemia of the brain and scattered perivascular pontine hemorrhages. Garrison and Leadingham [9] also found areas of perivascular hemorrhage in the brain in addition to changes in the lungs, spleen, pancreas, gastrointestinal tract, and liver. In contrast to these results from ingestion of the substances, von Wendel [10] found hemorrhagic cystitis, hemorrhagic tracheobronchitis, and pneumonia after contact with the vapor through the skin and lungs. In animal experimentation, Kistler and Luckhardt [3] found changes that took place after the intravenous injection and insertion of ethylene dichloride into the stomach by tube rather similar to those found in people by other observers. They found corneal cloudiness in one dog given the substance by stomach tube. Highman, Heppel, and Lamprey,[11] working with rats, noted a high evidence of fatty changes in the heart, liver, and kidneys following subcutaneous injection of 1 cc. of ethylene dichloride per kilogram of weight, with a 35% mortality in 24 hours. These workers found the mortality rate and incidence of fatty changes mentioned to be reduced by the immediate administration of methionine and certain other sulfhydryl compounds, such as dimercaprol (BAL) and cysteine. They gave most of these by stomach tube in aqueous solution or 5% suspension of acacia in isotonic sodium chloride solution, though the methionine was given intraperitoneally in 2% aqueous solution and the dimercaprol was given intramuscularly in two divided doses four hours apart, after being dissolved in 10% benzyl benzoate in peanut oil. A noteworthy fact in this respect is that the protective substances were given after the injection of the ethylene dichloride.

Other studies by Heppel and others have been made of the toxic effects of ethylene dichloride upon living organisms. One of these [12] has shown that methionine, *p*-aminobenzoic acid, aniline, and sulfanilamide administered orally to mice before exposure to the vapor gave definite protection from the deleterious effects of the substance. Another study [13] showed that the sulfur-containing amino acids, L-cystine and DL-methionine, protected young rats against death from inhalation exposures to ethylene dichloride. Nine sulfur-free amino acids were found to be nonprotective, while some inorganic sulfur-containing compounds did not give protection. All substances found to be protective contain the sulfhydryl group. In another study,[14] it was found that in rats prepared with rations high in fat and low in protein, the mortality after inhalation exposures to ethylene dichloride was increased, while with low fat and high protein intake prior to exposure the death rate was definitely lowered.

CONCLUSIONS

In our opinion, these results suggest methods of therapy in cases of persons who have swallowed ethylene dichloride by accident or with suicidal intent. The giving of methionine, cysteine, or other sulfhydryl compounds appears to be helpful, particularly if it is done promptly after ingestion of the ethylene dichloride. Prompt gastric lavages, high colonic irrigations, intravenous administration of glucose, and blood transfusions are indicated. Other supportive measures, such as positive pressure oxygen, warmth, and stimulants, should be given when necessary. Prevention, of course, is always better than cure, and this may be obtained, as we have subsequently done here, by keeping the ethylene dichloride in a small container so surrounded by basic materials that it can not be picked up and the contents ingested (fig. 4). The container is a small bottle, larger at the bottom than at the top, which just protrudes through a hole in the surrounding wooden block. The block has a hole entirely through it that is also larger at the bottom than at the top to permit the presence of the container. As shown in figure 4, the block is held to the desk by two metal screws. The patient, therefore, can obtain ethylene dichloride only in the small amount held in a medicine dropper or adherent to the surface of the glass rod sometimes used as an applicator.

1303 Waverly St. (Dr. Hubbs).

---

5. Bloch, H.: Zwei Intoxikationen durch Dichloraethan bei Verwendung als Berauschungsmittel, Schweiz. med. Wchnschr. **76**: 1078-1079 (Oct. 19) 1946.

6. Meurs, H. A.: Een gaval van vergiftiging door dichlooraethan met doodelijken afloop, Nederl. tijdschr. geneesk. **88**: 270 (March 18) 1944.

7. Keyser, J. L.: Doodelijke vergiftiging door dichlooraethan, Nederl. tijdschr. geneesk. **88**: 641 (July 8) 1944.

8. Lochhead, H. B., and Close, H. P.: Ethylene Dichloride Plastic Cement: Case of Fatal Poisoning, J. A. M. A. **146**: 1323 (Aug. 4) 1951.

9. Garrison, S. C., and Leadingham, R. S.: Fatal Case of Ethylene Dichloride Poisoning in Occupational Therapy Department of Neuropsychiatric Hospital, Am. J. Phys. Med. **33**: 230-237 (Aug.) 1954.

10. von Wendel, H.: Tödliche Vergiftung durch Dichloräthan (Äthylenchlorid), Pharmazie, Berlin **3**: 398-400 (Sept.) 1948.

11. Highman, B.; Heppel, L. A., and Lamprey, R. J.: Toxicology of 1,2-Dichloroethane (Ethyene Dichloride): Effect of Protective Agents on Visceral Fatty Changes in Exposed Rats, A. M. A. Arch. Path. **51**: 346-350 (March) 1951.

12. Heppel, L. A., *and others: Toxicology of* 1,2-Dichloroethane (Ethylene Dichloride): Its Acute Toxicity and Effect of Protective Agents, J. *Pharmacol.* & Exper. *Therap.* **84**: 53-63 (May) 1945.

13. Heppel, L. A.; Porterfield, V. T., and Sharpless, N. E.: Toxicology of 1,2-Dichloroethane (Ethylene Dichloride): Its Detoxication by L-cystine, DL-Methionine and Certain Other Sulfur Containing Compounds, J. Pharmacol. & Exper. Therap. **91**: 385-394 (Dec.) 1947.

14. Heppel, L. A., and others: Toxicology of 1,2-Dichloroethane (Ethylene Dichloride): Influence of Dietary Factors on Toxicity of Dichloroethane, J. Indust. Hyg. & Toxicol. **27**: 15-21 (Jan.) 1945.

AMERICAN TRYPANOSOMIASIS (CHAGAS' DISEASE)

FIRST INDIGENOUS CASE IN THE UNITED STATES

Norman C. Woody, M.D.
and
Hannah B. Woody, M.D., Corpus Christi, Texas

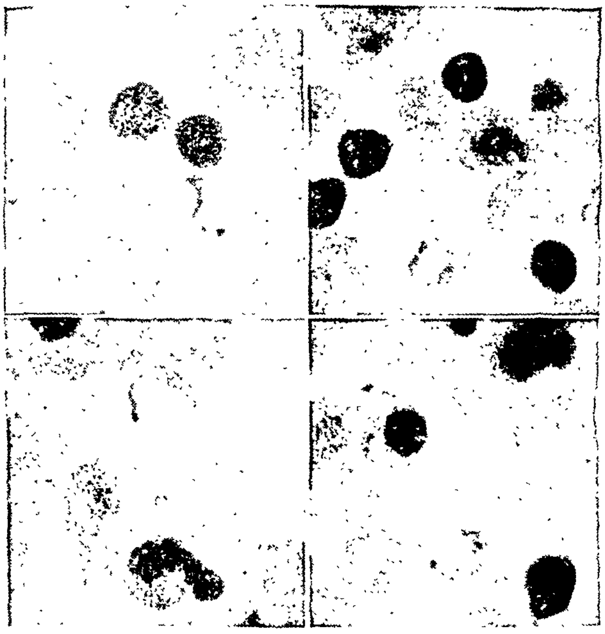
American trypanosomiasis (Chagas' disease)—the infection of man with Trypanosoma cruzi—was first described in 1909 by Carlos Chagas when he found the organism in the blood of a Brazilian child. This trypanosome had been discovered previously by him in the intestine of a triatomid bug, and he later traced the life cycle of the parasite from animal reservoir hosts, via the triatomid, to man. In subsequent years many investigators have added information on the distribution of the parasite (in animals and insects) through various parts of North and South America. In the course of these studies, naturally infected triatomids were found in California and Arizona. Similarly infected insects were found in Texas.[1] In Texas, armadillos, opossums, mice, and wood rats have been shown to be naturally infected.[2] Despite this association of a natural animal reservoir and infected insect vectors, no instance of the infection in man has been reported as occurring within the United States. The first such case is reported below.

REPORT OF A CASE

A 10-month-old white female child was seen on July 28, 1955, with the complaint of fever and listlessness of 36 hours' duration. The child was born on Oct. 5, 1954, and has been under our care since birth. The mother was well in all respects throughout pregnancy, and delivery was normal and at term. There have been no illnesses prior to the onset of the present symptoms. The mother and father were born and have lived continually in the United States, and the child has not been out of the state, having resided at the same address since birth. The home is in a newer subdivision of the city, on the edge of what had long been range land, heavily overgrown with mesquite and brush. Many opossums have been seen in the area at night. Some time before the child's illness the carcass of a dead opossum was seen being fed upon by triatomid bugs. These insects, locally called blood-suckers, have been a source of trouble in the family home for several months, often biting the occupants during sleep. The control of the bugs, according to the father, has been difficult, since the insects feed at night and scurry rapidly from sight when a light is made. The father has been bitten several times on the arms, the bites producing indurated swellings of 5 to 8 cm. in diameter. The child is not known to have been bitten; no similar swellings suggestive of bites have been found upon her.

At the time of examination the child had been having fever with a temperature of 101 to 103 F for 36 hours and was listless and irritable. She did not appear particularly ill, however, and physical examination revealed nothing but irritability. A blood cell count showed 10,600 white blood cells per cubic millimeter, of which 78% were lymphocytes. A catheterized urine specimen was negative. The following day she had a temperature of 101 F with no change in findings. On the third day of illness a fine macular rash was noted over the extremities and trunk. A tentative diagnosis of virus infection of unknown type (possibly infectious mononucleosis) was made, and the child was empirically given tetracycline (Achromycin) while we awaited developments.

The mother did not report back until Aug. 8, 1955, relating that during the 10 day interval the child had had some slight fever, that irritability had persisted, and that slight puffiness of the eyelids had developed. Rectal temperature was 102 F, and there was a moderately enlarged posterior auricular node, which was firm, nontender, and freely movable, slight periorbital edema without conjunctivitis, but no other findings. The liver was not enlarged, the spleen was not palpable, and the heart seemed normal. Hemoglobin was 11.5 gm. per 100 cc. (Sahli), white blood cells were 35,300 per cubic millimeter with 18% polymorphonuclear cells and 82% immature lymphocytes. Platelets were abundant. Many Gumprecht's shadows were present on the smear. With such findings, leukemia was suspected and a more detailed study of the smear was undertaken. In the course of examining the smears several typical examples of T. cruzi were observed (see figure). Thick film preparations yielded numerous trypanosomes, and they were noted in wet film preparations as frenetically motile animalculae. The accuracy of the identification was confirmed by Dr. John F. Pilcher, pathologist, of Corpus Christi, who also made the photomicrographs. Further confirmation was obtained from material submitted to Dr. Rodney Jung of the Department of Tropical Medicine, Tulane University School of Medicine, New Orleans.



Photomicrographs showing typical examples of Trypanosoma cruzi in blood of patient with American trypanosomiasis.

The subsequent clinical course of the patient has been somewhat anticlimactic. In view of the report of Porter,[3] based on animal studies, tetracycline therapy was resumed, and the child became afebrile within 48 hours. Slight periorbital edema has persisted. Some irritability remains. While daily checks of the blood continue to show trypanosomes, no hepatosplenomegaly, lymphadenopathy, or neurological or cardiac abnormalities have developed. Electrocardiograms have been normal, as have cardiac roentgenograms.

COMMENT

According to Craig and Faust,[4] "Trypanosoma cruzi lives in the blood as a morphologically typical trypanosome, in the reticulo-endothelial cells of man and certain animals as a leishmania, and in the intestinal tract of certain insects typically as a crithidia. In man the most frequent locations of the parasite are in the reticuloendothelial cells of the spleen, liver, lymph-nodes, and the lymphatic tissues and in the cells of the heart muscle. In addition, the cells of striated muscle, the bone marrow, the supra-renal gland, testes, ovaries and nervous system may be invaded." The pathology consists essentially of destruction of tissue cells resulting from growth and multiplication of the organism within them; clinical manifestations result from such destruction. The predominant lesions are found in heart muscle, in reticuloendothelial structures, and in the nervous system.

---

[1] Packchanian, A.: Natural Infection of Triatoma Gerstakeri with Trypanosoma Cruzi in Texas, Pub. Health Rep. **54**: 1547-1554 (Aug. 25) 1939. Wood, S. F.: New Localities for Trypanosoma Cruzi Chagas in Southwestern United States, Am. J. Hyg., Sec. C **34**: 1-13 (July) 1941. Davis, D. J.; McGregor, T., and deShazo, T.: Triatoma Sanguisuga (LeConte) and Triatoma Ambigua Neiva as Natural Carriers of Trypanosoma Cruzi in Texas. Pub. Health Rep. **58**: 353-354 (Feb. 26) 1943.

[2] Wood, F. D., and Wood, S. F.: Present Knowledge of Distribution of Trypanosoma Cruzi in Reservoir Animals and Vectors, Am. J. Trop. Med. **21**: 335-345 (April) 1941.

[3] Porter, J. N., and others: Achromycin: A New Antibiotic Having Trypanocidal Properties, Antibiotics & Chemother. **2**: 409-410 (Aug.) 1952.

[4] Craig, C. F., and Faust, E. C.: Clinical Parasitology, ed. 4, Philadelphia, Lea & Febiger, 1945.

Two forms of American trypanosomiasis are commonly described. The acute form, usually seen in young children, is generally pictured as lasting from 20 to 30 days and is characterized by fever, lymphocytosis, with or without a leukocytosis, nonpitting edema of the lids and face (occasionally the entire body), due presumably to deposition of a mucoid material in the tissues, and neurological symptoms ranging from simple irritability to those typical of encephalitis. Trypanosomes are demonstrable in the blood during the acute form. The chronic form succeeds the acute stage in most children who survive. It is seen also in adults, and symptoms are dependent on localization of the parasites within the tissues. Consequently, cardiac, adrenal, and neurotropic forms have been described. Except for periods of febrile exacerbations, the trypanosomes cannot be found in the blood in the chronic form, diagnosis being possible by use of complement fixation or skin tests. Xenodiagnosis, consisting of allowing laboratory-bred triatomids to feed on a suspected individual and the subsequent demonstration of the parasite in the intestinal tract of the bug, is an interesting method. The trypanosome is said to grow well on N. N. N. medium. Animal inoculation, using guinea pigs, hamsters, rats, mice, puppies, and kittens, is a practical method of recovering the organism.

SUMMARY AND CONCLUSIONS

The present case proves that strains of Trypanosoma cruzi, naturally occurring in animals and reduviid bugs in the vicinity of Corpus Christi, Texas, are infective for man; it implies that unrecognized cases are probably present in the area; and it emphasizes that acute American trypanosomiasis (Chagas' disease) is encountered in young children. The existence of unsuspected human carriers becomes an immediate possibility that will have to be reckoned with in the administration of blood transfusions. Kelser,[4a] working in Panama, showed by means of complement fixation tests an incidence of 3.7% of unsuspected infection from a group of 1,626 persons. Murgatroyd [5] recommends that persons from an endemic area not be used as blood donors unless they give negative complement fixation tests. T. cruzi has remained viable in blood from acute cases as long as 257 days.[6]

This patient is being reported in order to alert physicians in the southwestern United States to the possibility of encountering American trypanosomiasis in man in these areas. The vague clinical manifestations in this patient suggest that, for children living in areas where animal reservoirs and infected insects are known to exist, the diagnosis of trypanosomiasis should be considered whenever vague febrile illnesses are accompanied by findings suggestive of myocarditis or encephalitis or whenever they are associated with degrees of lymphocytosis reminiscent of infectious mononucleosis, infectious lymphocytosis, or leukemia. Strain differences of T. cruzi apparently account for observed variations of virulence and for organ predeliction. Such characteristics of the trypanosomes isolated from this child are, of course, as yet unknown. We have begun studies to illuminate these points, to be reported at a later date.

515 Elizabeth (Dr. N. C. Woody).

[4a] Kelser, R. A., in Craig, C. F., and Faust, E. C.: Clinical Parasitology, ed. 4, Philadelphia, Lea & Febiger, 1945, p. 194.

[5] Murgatroyd, F., in Modern Practice in Infectious Fevers, edited by H. S. Banks, New York, Paul B. Hoeber, Inc., 1951.

[6] Craig, C. F.: Laboratory Diagnosis of Protozoan Diseases, ed. 2, Philadelphia, Lea & Febiger, 1948, p. 223.

CARBON DISULFIDE POISONING

REPORT OF TWO CASES

Morris Kleinfeld, M.D.
and
Irving R. Tabershaw, M.D., New York

In spite of the scarcity of reports on carbon disulfide poisoning in the American literature as contrasted with the European literature, cases of this condition do occur in the United States. The apparently low incidence may be due to lesser use of this material or to better engineering control methods. The most cogent reason, however, is the probable unfamiliarity with this disease on the part of the general practitioner. Two recent cases of carbon disulfide poisoning are presented for the following reasons: (1) the clinical manifestations and differential diagnoses are sufficiently interesting and bizarre to warrant description and comment, and (2) the relationship between maximum allowable concentrations and the occurrence of carbon disulfide poisoning needs reevaluation.

REPORT OF CASES

CASE 1.—A 43-year-old male had as his chief complaint anorexia and marked paresthesias of his hands and numbness of his legs. The patient dated his present difficulties to an accident that occurred in his place of employment when he was suddenly exposed to an excessive amount of carbon disulfide while attempting to repair a leaky line. Although he felt groggy and weak, he continued to work until late that evening. Returning home, he slept 15 hours and, upon awakening, complained of severe headache and marked weakness. Shortly thereafter, he became more listless and lethargic and two days later was hospitalized.

On admission to the hospital, the patient was found to be markedly dehydrated and pale, with no abnormal clinical findings in his chest and abdomen. No pathological reflexes were elicited. There were several hemorrhagic areas in both fundi. There was a slightly elevated temperature. Blood pressure was 100/70 mm. Hg. Laboratory examination revealed a moderately severe anemia; hemoglobin level was 5.0 gm. per 100 cc.; red blood cell count was 2,300,000 per cubic millimeter; hematocrit 17%. The white blood cell count was moderately elevated (22,400 per cubic millimeter). The reticulocytes count was 1.5%. The bone marrow showed a low ratio of erythroid elements. Chest x-ray taken nine days after admission showed a broncho-

---

Director (Dr. Tabershaw) and Chief, Medical Unit (Dr. Kleinfeld), Division of Industrial Hygiene, New York State Department of Labor.

Dr. S. E. Krohn, Utica, N. Y., and Dr. T. W. Piekielniak, Whitesboro, N. Y., gave permission to publish the case histories of their patients.

pneumonia of the lower lobe of the right lung. Stool examination for occult blood was negative, but a gastrointestinal series revealed the presence of a large gastric ulcer of the lesser curvature.

The patient was treated with antibiotics, blood transfusions, and small amounts of corticotropin (ACTH). He showed gradual improvement and became more alert, and his strength increased. His temperature returned to normal and persisted so until discharge. Repeat blood cell counts showed a hemoglobin level of 10.6 gm. per 100 cc.; hematocrit 36%; and a white blood cell count of 11,900 per cubic millimeter with a normal differential count. A bone marrow smear two weeks after admission revealed a normal erythroid-myeloid ratio. The chest x-ray two days prior to discharge showed clearing of the pneumonic process, and he left the hospital on the 16th hospital day. Since discharged, the patient has not been up to par. He has had periods of depression, showing a lack of interest in his surroundings, sexual impotency, and paresthesias in the arms and hands. There are no abnormal neurological reflexes. Funduscopic examination shows no evidence of hemorrhage. He is presently receiving thiamine injections and vitamin B_{12}.

History.—About 10 years ago the patient began to complain of headaches, general weakness, nausea, and inability to concentrate. These were transient and would subside after he would leave the plant. Six years ago he began to have recurrent epigastric pain, and a gastrointestinal series showed an obstructing duodenal ulcer. Three years ago he left his present employment for several months because of weight loss, weakness, and malaise. These symptoms cleared up and he returned to work. During the past year, the above symptoms recurred, and he attributed this to an increase in the work-load. A three day rest period from work was insufficient to clear up his symptoms.

Environmental History.—For the past 20 years, the patient has worked in a churn room of a rayon factory. During most of this period he was a churn operator, which involved the loading of cellulose material into and the subsequent cleaning of churns. Carbon disulfide is pumped into a closed overhead weighing tank from which it is supplied to each churn as needed. In the transferring and shoveling operations and in the cleaning of the churn, the workers are brought into close contact with the carbon disulfide vapors from the material.

CASE 2.—A 49-year-old male complained of numbness of hands, difficulty in walking, unsteadiness, double vision, loss of libido, impotency, temper outbursts, and depression. The patient asserted that his ailment first started about 10 years ago with intermittent numbness of the hands and subsequent impairment of his ability to do skilled movements in writing. These symptoms were transient, and the patient continued to work. About eight years ago he began to demonstrate emotional instability and forgetfulness. At the same time, he complained of loss of libido and sexual impotency. He also experienced easy fatigability and giddy sensations. These symptoms became increasingly more severe, and about four years ago his sexual impotency was complete. For the past four years he has exhibited marked depression, difficulty in concentration, and memory impairment. Three years ago, while at work, he had a sudden episode of diplopia and unsteadiness of gait that lasted about 12 hours. This unsteadiness of his gait persisted. Two years ago his diplopia, which still persists, returned. Hernia repair was done three years ago. He was hospitalized several times during the past few years for episodes of mental depression. The last hospitalization occurred one year ago, and a recent attempt to rehabilitate him at a special clinic proved unsuccessful.

Clinically, the patient was well developed and well nourished but appeared depressed and apprehensive. There was no cough, dyspnea, or cyanosis. The pupils were equal and regular and reacted to light and accommodation. There was lateral and vertical nystagmus of the left eye and paralysis of the left lateral rectus muscle. Examination of the chest and abdomen revealed no abnormalities. Examination of extremities revealed bilateral varicosities. Neurological examination showed considerable unsteadiness of gait. There was marked unsteadiness of the right hand. Deep reflexes were hyperactive. Sensation was normal. Vibratory and position sense were intact. Alternating movements of the left leg were impaired. Funduscopic examination revealed "crumb-like" exudates in upper temporal quadrant of right retina.

Laboratory examination showed that the red blood cell count, hemoglobin level, and white blood cell count and differential were within normal limits. The urinalysis was normal. The Mazzini test was negative. Chest x-ray revealed a slight left ventricular prominence with essentially normal lung fields. The only pertinent finding on the electrocardiogram was a tendency toward low amplitude of the Q, R, and S complexes; there was left deviation of the electrical axis. The patient has been treated by intensive therapy with vitamin B complex, thiamine, and androgens but has shown very little improvement.

Environmental History.—The operations performed on this patient and his exposure to carbon disulfide were essentially the same as those of the patient described in case 1.

COMMENT

These cases illustrate the widespread systemic manifestations that may follow exposure to carbon disulfide. Of particular significance are the irreversible neuropsychiatric and organic changes that can follow prolonged exposure to this agent. This is well exemplified in case 2. Although many authors feel that the clinical picture is usually reversible even after long exposure, it is important to recognize that cases do occur that are refractory to all forms of therapy.[1] This makes it all the more essential to recognize the symptom complex early, before the toxic agent leaves its telltale effect. Both patients showed symptoms that may be mistaken for neuralgia and neurasthenia of nonspecific origin and that can persist for many years before their relationship to the patient's environment is discovered. Not infrequently, it takes a sudden acute exposure to carbon disulfide to focus attention on the existence of chronic symptoms. This is seen in case 1.

The patient in case 1 revealed, in addition to the neuropsychiatric manifestations, severe organic changes that were concomitant. It is noteworthy that this individual had gastrointestinal symptoms that were diagnosed as a gastric ulcer by x-ray. The lesion healed after removal of the patient from his environmental exposure, yet no causal relationship was entertained. That carbon disulfide may produce gastrointestinal ulceration is suggested by the study reported by Weise, who analyzed the gastrointestinal symptoms in 100 workers in the rubber and artificial silk industries.[2] In 14 of these cases, ulcer of the stomach or the duodenum was diagnosed and operations were performed on several patients. In 11 others, ulcers were suspected. The morbidity statistics from several large artificial silk factories indicate an incidence of stomach trouble of 17.7% from exposure to carbon disulfide, while all other textile factories show 2.7%. Vigliani reported 150 cases of carbon disulfide toxicity, in 28 of which gastric disturbance, notably gastric pain, was prominent.[3]

The marked anemia of the patient in case 1 observed on his last admission may have been due to the duodenal ulcer, in spite of the negative stools for occult blood. A direct effect of carbon disulfide on the bone marrow cannot, however, be ruled out. What is most significant

---

1. Gordy, S. T., and Trumper, M.: Carbon Disulfide Poisoning, With a Report of Six Cases, J. A. M. A. **110**: 1543 (May 7) 1938.
2. Weise, W.: Gastro-Intestinal Disturbances Caused by Chronic Inhalation of Carbon Disulfide and Hydrogen Sulfide, Arch. f. Gewerbepath. u. Gewerbehyg. **4**: 219, 1933.
3. Vigliani, E. C.: Clinical Observations on Carbon Disulfide Intoxication in Italy, Indust. Med. **19**: 240, 1950.

is the rapid healing of the ulcer after removal from his environmental exposure. How carbon disulfide produces an ulcer is speculative. There are several mechanisms that may be responsible: a direct effect on the gastric cell, increased vagal effect, or increased corticotropic activity. In retrospect, it would appear that the gastric ulcer the patient had five years ago, as well as the present duodenal ulcer, may be causally related to the carbon disulfide intoxication. The essential role played by a good occupational history in the diagnosis of this disorder is obvious. The very nature of the nonspecificity of the early symptoms resulting from low-grade exposure and the subsequent widespread systemic manifestations that may ensue make differential diagnosis difficult. Patients are often incorrectly thought to be suffering from chronic alcoholism, lead poisoning, brain tumor, multiple sclerosis, and polyneuritis of other origin.[4] Also, in view of the absence of any known specific antidote against carbon disulfide poisoning, the most effective therapy for this disorder is the early recognition and removal of the patient from exposure.

The ideal goal to be sought is prevention, and this necessitates both medical and engineering control. The physician's familiarity with the patient's occupation and the exact nature of his operations will aid immeasurably in the total evaluation of the patient's complaints and clinical findings. Environmental control involves essentially effective ventilation to maintain the air concentration of carbon disulfide vapor at safe levels. This has been established as 20 ppm by the American Standards Association, principally on the basis of clinical experience and engineering feasibility. This standard has not received universal agreement. It is noteworthy that Lewy, evaluating the medical aspects of carbon disulfide toxicity in Pennsylvania, suggested 10 ppm as a safe limit for short-term exposures.[5] Recently, Graziani and Pecora reported that 17 workers exposed to concentrations of approximately 2 to 4 ppm revealed a diminution in cholinesterase in the blood and abnormal electrocardiographic changes showing slight toxic reaction to carbon disulfide.[6] Our own investigation of the work area of the cases described above revealed a weighted average slightly in excess of 20 ppm. It is significant that 14 additional employees (employed less than five years) in this same work area complained of occasional nausea and headache but presented no overt evidence of poisonings. The findings of other investigators[7] and our own data suggest the need for reducing the present maximum allowable standard, preferably to 10 ppm. The improved engineering techniques now available make this feasible and will give workers a greater safety factor in handling this material.

SUMMARY AND CONCLUSIONS

In two cases of chronic carbon disulfide poisoning presented, these significant aspects were noted. 1. In one patient the diagnosis was not entertained for about five years; in the other, an acute, overwhelming exposure made the picture of chronic poisoning nonequivocal. 2. The possible causal relationship between chronic carbon disulfide exposure and peptic ulceration was entertained. 3. The neuropsychiatric manifestation in both patients predominated. Widespread systemic manifestations were also present. 4. In one patient, the severe organ system damage was irreversible. In view of the experiences of others and our own data after reevaluation of the relationship between maximum allowable air concentration of carbon disulfide and occurrence of poisoning, it is recommended that the present standard of 20 ppm be reduced to 10 ppm to provide a greater safety factor in handling this material.

80 Centre St. (13) (Dr. Kleinfeld).

4. Johnstone, R. T.: Occupational Medicine and Industrial Hygiene, St. Louis, C. V. Mosby Company, 1948.

5. Group Study: Survey of the Carbon Disulfide and Hydrogen Sulfide Hazards in the Viscose Rayon Industry, Bulletin 46, Harrisburg, Pa., Department of Labor and Industry, 1938.

6. Graziani, B., and Pecora, L.: Pathological Condition Due to Carbon Disulfide, Folia med. 31: 129, 1948.

7. Group Study.[5] Graziani and Wood.[6]

COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

Monographs and supplemental statements on drugs that appear in this column have been authorized by the Council for publication and inclusion in New and Nonofficial Remedies. They are based upon the evaluation of available scientific data and reports of investigations.

R. T. STORMONT, M.D., *Secretary.*

Sodium Radio-Iodide (I^{131}), U. S. P.—Sodium radio-iodide is a salt in which the iodine is present as the radioactive isotope, iodine-131. It is obtained from the products of uranium fission, is essentially "carrier-free," and contains only trace amounts of the naturally occurring isotope iodine-127.

The preparation of this compound that is listed in the U. S. P. is Sodium Radio-Iodide (I^{131}) Solution.

Actions and Uses.—Sodium radio-iodide (I^{131}) is freshly prepared from the radioactive isotope, I^{131}. It is useful for diagnostic studies in patients with suspected thyroid disease, for treatment of selected cases of thyrotoxicosis, and, in conjunction with other agents and methods, for the palliative treatment of carcinoma of the thyroid gland and metastatic lesions arising from it. It is also used to detect distant metastatic growths of thyroid carcinoma and to determine whether intact tissue or a tumor mass is of thyroid origin. It may be used to induce hypothyroidism in euthyroid patients with angina pectoris to aid in the management of that condition.

The accumulation of radio-iodine in the thyroid gland probably reflects, to a large extent, the formation of diiodotyrosine and thyroxine and the storage of these compounds in the thyroid follicle. At first, iodine may be present in the inorganic form (NaI), but in a short time it becomes protein-bound, apparently linked with the tyrosine radical, in the gland. Patients who have little or no functioning thyroid tissue, particularly with the clinical syndrome of myxedema, usually excrete considerably more of the diagnostic dose in the urine during the first 24 to 72 hours than do normal subjects. The uptake of radio-iodine may be depressed by prior intake of stable iodine in any form or by the use of thyroid substance or of antithyroid drugs. Among the many iodine-containing preparations and compounds that may contain dissociable iodine are:

1. External iodine preparations:
    a. Ointments and solutions of iodine or iodides
    b. Tinctures of iodine or iodides
    c. Iodoform gauze
2. Internal iodine preparations:
    a. Strong iodine solution (compound iodine solution, Lugol's solution)
    b. Potassium iodide and potassium iodide solution
3. Asthma, cough, and vitamin preparations containing iodine compounds
4. X-ray contrast mediums:
    a. Gallbladder mediums, such as tetraiodophenolphthalein, iodoalphionic acid, iodopanoic acid, and iophenoxic acid
    b. Urographic and vasographic mediums, such as sodium iodide, iodopyracet, sodium acetrizoate, and sodium iodomethamate
    c. Myelographic mediums, of both the oily and the aqueous type, containing iodine
    d. Cavity and sinus visualization mediums, such as sodium iodide and chloriodized and iodized oils
5. Antiparasitic drugs:
    a. Iodochlorhydroxyquin
    b. Diiodohydroxyquin
6. Thyroid extract, thyroxine
7. Iodinated antithyroid drugs, such as iothiouracil sodium

Other antithyroid drugs, particularly those of the thiourea series and methimazole, also influence the uptake of radio-iodine by thyroid tissue. The quantitative uptake of radio-iodine by malignant tumors of the thyroid varies in accordance with many factors, including their histological differentiation.

Side-effects depend upon radiation dosage range. None are to be expected with the doses used for diagnostic tests (1 to 100 μc [microcuries]). With the therapeutic dose used in treatment of hyperthyroidism (5 to 20 mc. [millicuries]), there may be a mild febrile reaction, with a slight decrease in blood leukocytes that returns rapidly to normal and a slight increase in sedimentation of erythrocytes. Local radiation effects (swelling and soreness) may be observed in the neck, and thyroid storm or crisis may be induced in very toxic cases. With doses administered in thyroid cancer (30 to 100 mc.), systemic radiation effects may be encountered, such as depression of hematopoiesis, as well as local radiation effects upon sites near functioning thyroid tissue. As with other agents that influence the thyroid, some direct influence on exophthalmus may be observed. Hypothyroidism is also a possible side-effect. Sodium radio-iodide is generally contraindicated in the presence of pregnancy.

Dosage.—Sodium radio-iodide is administered orally or intravenously in aqueous solutions of appropriate concentration. It is administered orally also in the form of capsules, to the inner surface of which an exact amount of the radioisotope is fixed. It should be emphasized that there is always a difference between the dosage administered and the amount taken up by the gland and that dosage is subject to variation in accordance with the age and condition of the patient. As a diagnostic agent for tracer and uptake studies, the dosage ranges from 1 to 50 μc. For diagnostic studies of aberrant thyroid tissue, outline scanning of the thyroid, and localization of metastases, the tracer dose may be as much as 100 μc or more.

The therapeutic dose is usually calculated after a diagnostic test to determine the percentage absorbed by the gland in a specified time, such as 24 hours. For the treatment of thyrotoxicosis, a single or fractional dose procedure may be used. With an estimated uptake of about 70%, a single dose administered is usually 105 to 180 μc per estimated gram of thyroid tissue, so as to provide a retained dose of about 75 to 125 mc. Accurate estimate of the amount of thyroid tissue may be difficult and should be considered carefully to avoid error in the calculation of dosage. In the majority of patients, the total therapeutic single dose should not exceed 8 mc. Any further dosage usually is not considered before 6 months has elapsed. If the fractional method of dosage is used, the initial dose is considerably less and the usual interval between doses is about 6 weeks to 2 months.

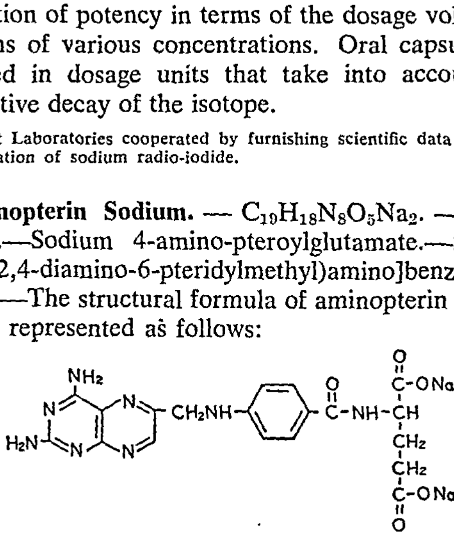
To induce hypothyroidism in the management of euthyroid angina pectoris, the isotope is administered orally either as a single dose of about 20 mc. or weekly in doses of about 6 mc. each for 5 weeks. After either method, further treatment may be given after an interval of not less than 60 days when additional antithyroid therapy is required.

Since the treatment of thyroid carcinoma and metastases is unique for each case, no information on the dosage for these conditions is included.

The decay in radioactivity of solutions, based on the half-life of the radioisotope, makes it necessary to correct the labeled potency immediately prior to use, in accordance with the time that has elapsed after the specified assay. A table of correction factors and a graphic chart are available to permit reasonably accurate recalculation of potency in terms of the dosage volume of solutions of various concentrations. Oral capsules are provided in dosage units that take into account the radioactive decay of the isotope.

Abbott Laboratories cooperated by furnishing scientific data to aid in the evaluation of sodium radio-iodide.

Aminopterin Sodium. — $C_{19}H_{18}N_8O_5Na_2$. — M.W. 484.40.—Sodium 4-amino-pteroylglutamate.—Sodium N-{*p*[(2,4-diamino-6-pteridylmethyl)amino]benzyl} glutamate.—The structural formula of aminopterin sodium may be represented as follows:



Actions and Uses.—Aminopterin sodium, a chemical derivative of folic acid, is said to "block" the action of the latter agent. In experimental animals it interferes with the conversion of folic acid to an active metabolite called citrovorum factor that is utilized for growth by the bacterial species Leuconostoc citrovorum. Aminopterin sodium depresses hematopoiesis and may exert a general toxic effect on all reticuloendothelial tissue. It is not yet clear whether its suppression of hematopoiesis is chiefly the result of folic acid antagonism or a systemic toxic action. It is thought that altered metabolism of folic acid may play a role in hematopoietic disorders characterized by excessive or disorderly proliferation of blood cells or their precursors.

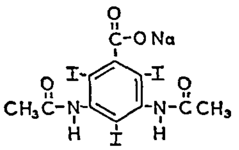
Aminopterin sodium is indicated only for the treatment of acute leukemia in children. It has produced temporary remission and appears to have increased survival time in acute leukemia of childhood for periods ranging from weeks to two years. Following therapy the hematological picture, as reflected in blood and bone marrow smears, is frequently almost indistinguishable from normal and persists for varying periods. The greatest effect has been observed in acute leukemia characterized by immature (blast) cell forms in the bone marrow or blood. Aminopterin sodium is not recommended for the treatment of leukemia in adults because it frequently produces no results. The drug has a powerful lethal action on embryonic tissue and should not be used in patients known to be, or suspected of being, pregnant.

Aminopterin sodium may produce irreversible depression of all blood cellular elements. In general, its toxicity is in direct proportion to the dose given. Constant supervision is essential. The drug should be discontinued if any of the following signs appear: ulceration of buccal mucosa, gastrointestinal ulceration and bleeding, diarrhea, rapid fall in blood leukocyte count, bone marrow depression primarily of the leukocyte series, hemorrhage at any site, or alopecia. The drug should not be prescribed without adequate facilities for repeated laboratory examination of the blood and bone marrow and clinical observation of the patient. White blood cell counts should be performed daily during the first month of therapy and three times a week thereafter; complete blood cell counts should be performed weekly and bone marrow punctures weekly to monthly. Bleeding and coagulation times and blood grouping and typing should be performed initially in anticipation of transfusion or surgery that also may be indicated.

Dosage.—Aminopterin sodium should be administered orally. For infants the dosage is 0.25 mg. and for children 0.5 mg., given three to six times weekly depending on the severity of the disease. It should be administered over a period of three weeks or more until bone marrow function becomes normal or signs of toxic reaction appear. Normal bone marrow function is considered to be indicated by a smear that reveals not more than 20% blast cells and lymphocytes. If there are toxic reactions, therapy should be stopped for 7 to 10 days; after toxic signs subside, it may be resumed at a somewhat lower dosage and continued until a clinical remission occurs and/or bone marrow returns to normal function. In the absence of a remission, and when the patient's condition remains reasonably good, therapy may be continued for two months or more at increased dosage, even to the point of mild toxicity, in an effort to obtain a remission. When the bone marrow returns to normal function, the patient may be continued on maintenance dosage, or treatment may be discontinued. If therapy is intermittent, sternal marrow aspiration should be performed every two weeks, as it is only by means of bone marrow studies that the earliest sign of relapse may be detected. Therapy then can be reinstituted before clinical deterioration appears.

Lederle Laboratories Division, American Cyanamid Company, cooperated by furnishing scientific data to aid in the evaluation of aminopterin sodium.

Diatrizoate Sodium. — $C_{11}H_8I_3N_2NaO_4$. — M.W. 635.92. — Sodium 3,5-diacetamido-2,4,6-triodobenzoate.—The structural formula of diatrizoate sodium may be represented as follows:



Actions and Uses.—Diatrizoate sodium is a water-soluble organic iodine compound suitable for use as a roentgenographic contrast medium in intravenous (excretory) urography. When injected intravenously, the agent is transported rapidly to the kidneys where it is excreted unchanged in the urine. When kidney function is normal, elimination begins almost immediately so that suitable x-ray shadows often can be obtained within 5 minutes after injection. With impaired renal function and delayed excretion, adequate shadows may not be obtainable until after 30 minutes or more. The time of appearance of suitable shadows also is influenced by the adequacy of preparation of the patient and the technique of injection.

Diatrizoate sodium should be used with the same precautions as for other organic iodine compounds and likewise is contraindicated in severe liver disorders and in advanced renal impairment with severe uremia. It should be used with caution, if at all, in patients with a history of allergy, especially those sensitive to iodine in any form, and caution also is advisable in patients with hyperthyroidism, hypertension, or active tuberculosis. Studies so far indicate that the agent produces a minimum incidence of minor side-effects and rarely produces severe vascular reactions. For the management of severe reactions, see the general statement in N. N. R. 1955 on water-soluble organic iodine compounds for roentgenography.

Dosage.—For excretory urography, diatrizoate sodium is administered by intravenous injection of a 50% solution. One cc. of this solution is used as a test dose for sensitivity. Crystals may form if the solution is cool but readily redissolve when warmed. After appropriate preliminary preparation of the patient the evening before examination and after examination of a "scout" film exposed immediately prior to injection to rule out confusing gas shadows, 30 cc. of a 50% solution, administered over a period of 1 to 3 minutes, usually is sufficient for visualization of the urinary tract on film exposed either 5, 10, or 15 minutes after injection. Compression of the bladder prior to injection may facilitate adequate filling of the pelves and ureters.

Winthrop-Stearns, Inc., cooperated by furnishing scientific data to aid in the evaluation of diatrizoate sodium.

THE JOURNAL
OF THE AMERICAN MEDICAL ASSOCIATION
Edited Under the Direction of the Board of Trustees
Editor and Managing Publisher . . AUSTIN SMITH, M.D.
Associate Editor . . . . JOHNSON F. HAMMOND, M.D.
Editor for Medical Literature Abstracts . GEORGE HALPERIN, M.D.
Assistant Editor . . . . WAYNE G. BRANDSTADT, M.D.

Subscription price . . Fifteen dollars per annum in advance
Cable Address . . . . "Medic, Chicago"

STATUS OF SURGERY FOR ASTHMA

There have been essentially four surgical procedures recommended for the treatment of bronchial asthma. First, there is the removal of localized destroyed areas of lung plus neurectomy.[1] Next, there has been the treatment of patients proved to be essentially totally epinephrine-resistant by carrying out an upper dorsal sympathectomy, unilateral or bilateral, in order to resensitize the patient to the effect of his own circulating epinephrine. This was described in detail by Carr.[2] Pulmonary vagotomy is recommended by Rienhoff and Gay.[3] Blades [4] described a combined denervation procedure removing the pulmonary plexus incorporating excision of both sympathetic and parasympathetic pulmonary denervation.

Follow-up studies on the long-term results of surgical treatment for asthma have been generally disappointing. Long-term follow-up of postganglionic dorsal sympathectomy in the patients proved preoperatively to be distinctly epinephrine-resistant has shown satisfactory persistent response to the surgical procedure.[5] Vagotomy alone and combined denervation in the form of plexectomy have usually produced from six months to one year of beneficial results followed by a complete return of symptoms. Long-term follow-up[6] suggests surgery is useful if there is a localized destructive area of bronchiectasis with associated asthma in a patient whose attacks originated resultant to infection and whose recurrences parallel episodes of infection. Long-term cure can be expected by complete excision of the destroyed tissue plus denervation in the form of high transection of the vagus nerve just below the level of the recurrent laryngeal nerve with excision of all branches going from the recurrent laryngeal nerve to the involved bronchial tree.[6] In a patient in whom an entire lung is destroyed and function tests show essentially no oxygen uptake by this organ, total pneumonectomy without associated denervation has produced permanent cure.

The basic principle involved in the present status of surgery for asthma is that denervated muscle can still present severe degrees of contraction in response to the appropriate allergen after denervation. Therefore, denervation procedures must be accompanied by total removal of the offending allergen, whether it be intrinsic or extrinsic. The situation of complete epinephrine resistance is seldom seen in bronchial asthma but, when present, should bring up serious consideration of the approach outlined by Carr; namely, dorsal sympathectomy. Unless epinephrine resistance is shown to be present in these patients, the sympathetic nervous system to the lung should not be tampered with.[7] Complete pulmonary vagotomy releases the bronchopulmonary tree from bronchospasm of neurogenic origin. Permanent complete vagotomy to the lung is not obtained by resection of the pulmonary plexus and requires complete transection of the vagus nerve by the method described above. The surgical treatment of bronchial asthma should only be considered as a last resort, except in persons with an obvious origin of asthma in response to bronchopulmonary infection. Demonstrable localized destroyed areas of the bronchopulmonary tree may act as trigger mechanisms.[8] It is advisable that all patients with bronchial asthma be considered for bronchoscopy to rule out bronchial ulcer as a cause for their disease as well as to eliminate such possibilities as neoplasms and stricture, which can produce wheezing.

DROWNING

Throughout most of the world drowning is a problem with which the public and the medical profession must cope. Warnings are issued to swimmers, waders, campers, fishermen, and others, but this does not prevent death from occurring frequently. Many studies have been made of artificial respiration but comparatively few of the physiology of drowning. As has been pointed out elsewhere,[1] this is important until more is learned about this method of dying. Until then the most important act is the immediate initiation and unceasing continuation of artificial respiration. Other procedures are secondary and should be implemented only as they can without interference with the artificial respiration. While the airway must be watched, any elaborate or unnecessary procedures will lessen the chance of survival. In view of the stimulus given to underwater swimming during and since World War II, it is hoped that research on drowning will be conducted extensively and the reports published without delay. There are few things in life that offer more attraction and at the same time more danger than bodies of water. Young and old, experienced swimmer and nonswimmer, in fact all, are likely subjects for drowning—and the water does not have to be deep.

---

[1] Abbott, O. A.: The Recent Advances in Surgery of the Autonomic Nervous System, Maryland M. J. **2**: 3-24 (Jan.) 1953.

[2] Carr, D., and Chandler, H.: Dorsal Sympathetic Ganglionectomy for Intractable Asthma, J. Thoracic Surg. **17**: 1-12 (Feb.) 1948.

[3] Rienhoff, W. F., Jr., and Gay, L. N.: Treatment of Intractable Bronchial Asthma by Bilateral Resection of Posterior Pulmonary Plexus, Arch. Surg. **37**: 456-469 (Sept.) 1938.

[4] Blades, B.; Beattie, E. J., Jr., and Elias, W. S.: Surgical Treatment of Intractable Asthma, J. Thoracic Surg. **20**: 584-591 (Oct.) 1950.

[5] Carr, D.: Personal communication to the author.

[6] Abbott, O. A.: Present Concepts Relative to Autonomic Nerve Surgery in the Treatment of Pulmonary Disease, Am. J. Surg. **90**: 479-489 (Sept.) 1955.

[7] Abbott, O. A.; Van Fleit, W. E.; Duschesne, E. R., and Roberto, A. E.: Studies upon the Physiological Function of the Human Vagus Nerve in Various Pathological States, J. Thoracic Surg., to be published.

[8] Abbott, O. A.; Hopkins, W. A., and Guilfoil, P. H.: Therapeutic Status of Pulmonary Autonomic Nerve Surgery, J. Thoracic Surg. **20**: 571-583 (Oct.) 1950.

[1] Ronald, K. W.: Drowning, Brit. M. J. **2**: 155-160 (July 16) 1955.

ORGANIZATION SECTION

ANNUAL A. M. A. MEETING IN CHICAGO JUNE 11-15, 1956

The Annual Meeting of the American Medical Association will be held in Chicago, June 11-15, 1956, with a complete program of lectures, television, motion pictures, and scientific exhibits. The lecture program for each section is prepared by the section secretary, and prospective participants should communicate as soon as possible with the secretary of the section before which they hope to read a paper.

Application blanks for space in the Scientific Exhibit are now available. Applications for space close on Jan. 9, 1956, but early application is encouraged. Blanks may be obtained from section representatives to the Scientific Exhibit or from the Secretary, Council on Scientific Assembly, American Medical Association, 535 N. Dearborn St., Chicago 10, Ill.

Following are the secretaries and representatives to the Scientific Exhibit from the various sections:

Anesthesiology

Secretary—Daniel C. Moore, M.D., 1118 Ninth Ave., Seattle 1.

Exhibit Representative—Scott M. Smith, M.D., 910 Medical Arts Bldg., Salt Lake City 1.

Dermatology

Secretary—Clarence S. Livingood, M.D., Henry Ford Hospital, Detroit 2.

Exhibit Representative—Samuel M. Bluefarb, M.D., 30 N. Michigan Ave., Chicago 2.

Diseases of the Chest

Secretary—John F. Briggs, M.D., 350 St. Peter St., St. Paul 2.

Exhibit Representative—Edwin R. Levine, M.D., 109 N. Wabash Ave., Chicago 2.

Experimental Medicine and Therapeutics

Secretary—George E. Burch, M.D., 1430 Tulane Ave., New Orleans 12.

Exhibit Representative—Joseph F. Ross, M.D., University of California Medical Center, Los Angeles 24.

Gastroenterology and Proctology

Secretary—Everett D. Kiefer, M.D., 605 Commonwealth Ave., Boston 15.

Exhibit Representatives—William H. Dearing, M.D., 102 Second Ave., S. W., Rochester, Minn.; Willard H. Bernhoft, M.D., 537 Delaware Ave., Buffalo 2.

General Practice

Secretary—E. I. Baumgartner, M.D., 25 Alder St., Oakland, Md.

Exhibit Representative—Charles E. McArthur, M.D., 1934 E. Fourth Ave., Olympia, Wash.

Internal Medicine

Secretary—A. Carlton Ernstene, M.D., 2020 E. 93rd St., Cleveland 6.

Exhibit Representative—Henry T. Ricketts, M.D., 950 E. 59th St., Chicago 37.

Laryngology, Otology and Rhinology

Secretary—Hugh A. Kuhn, M.D., 112 Rimbach St., Hammond, Ind.

Exhibit Representative—Walter E. Heck, M.D., Stanford University Hospitals, San Francisco 15.

Military Medicine

Secretary—Capt. Cecil L. Andrews, M.C., U.S.N., Bureau of Medicine and Surgery, Department of the Navy, Washington 25, D. C.

Exhibit Representative—Capt. Robert V. Schultz, M.C., U.S.N., Bureau of Medicine and Surgery, Department of the Navy, Washington 25, D. C.

Nervous and Mental Diseases

Secretary—Karl O. Von Hagen, M.D., 2010 Wilshire Blvd., Los Angeles 57.

Exhibit Representative—G. Wilse Robinson Jr., M.D., 2625 W. Paseo, Kansas City 8, Mo.

Obstetrics and Gynecology

Secretary—D. Frank Kaltreider, M.D., University Hospital, Baltimore 1.

Exhibit Representative—Frederick H. Falls, M.D., P. O. Box 47, River Forest, Ill.

Ophthalmology

Secretary—Harold G. Scheie, M.D., 313 S. 17th St., Philadelphia 3.

Exhibit Representative—Frank W. Newell, M.D., 950 E. 59th St., Chicago 37.

Orthopedic Surgery

Secretary—Frederick R. Thompson, M.D., 16 E. 90th St., New York 28.

Exhibit Representative—J. Vernon Luck, M.D., 1930 Wilshire Blvd., Los Angeles 57.

Pathology and Physiology

Secretary—Edwin F. Hirsch, M.D., 1439 S. Michigan Ave., Chicago 5.

Exhibit Representative—Frank B. Queen, M.D., 3181 S.W. Sam Jackson Park Rd., Portland 1, Ore.

Pediatrics

Secretary—Wyman C. C. Cole Sr., M.D., 3001 W. Grand Blvd., Detroit 2.

Exhibit Representative—F. Thomas Mitchell, M.D., Le Bonheur Children's Hospital, Memphis 5, Tenn.

Physical Medicine

Secretary—Walter J. Zeiter, M.D., 2020 E. 93rd St., Cleveland 6.

Exhibit Representative—Donald A. Covalt, M.D., 400 E. 34th St., New York 16.

Preventive and Industrial Medicine and Public Health

Secretary—Frank Princi, M.D., University of Cincinnati College of Medicine, Cincinnati 19.

Exhibit Representative—Paul A. Davis, M.D., 633 E. Market St., Akron 4, Ohio.

Radiology

Secretary—Traian Leucutia, M.D., Harper Hospital, Detroit 1.

Exhibit Representative—Richard H. Chamberlain, M.D., 3400 Spruce St., Philadelphia 4.

Surgery, General and Abdominal

Secretary—Walter G. Maddock, M.D., 250 E. Superior St., Chicago 11.

Exhibit Representative—John H. Mulholland, M.D., 550 First Ave., New York 16.

Urology

Secretary—Thomas A. Morrissey, M.D., 40 E. 61st St., New York 21.

Exhibit Representative—Milton M. Coplan, M.D., 550 Brickell Ave., Miami 32, Fla.

JOINT COMMISSION ON ACCREDITATION OF HOSPITALS

Questions and Answers

In order to aid a better understanding of the activities of the Joint Commission on Accreditation of Hospitals, the commission has provided the following questions and answers. Physicians and others interested in having their questions answered in THE JOURNAL may send them to the Editor of THE JOURNAL for referral to the commission or direct to Dr. Kenneth B. Babcock, Director of the Commission, 660 N. Rush St., Chicago 11.

QUESTION.—*Does the Joint Commission on Accreditation of Hospitals approve of the use of "short forms" for medical records? M.D., Virginia.*

ANSWER.—Short form medical record formats are acceptable under certain circumstances. These abbreviated forms may be used for admissions of 48 hours or less when these admissions are for minor conditions. The conditions in which such forms can be utilized should be delineated in the rules and regulations of the hospital staff. As a rule, such conditions include cystoscopic examinations, dilation and curettage, simple fractures, tonsillectomies, removal of sebaceous cysts, and similar procedures. Obviously, many others may be included. It should be emphasized that any major condition, irrespective of the time of hospitalization, must have a complete and full medical record. In any instance, the information on the record must be sufficient to substantiate the diagnosis and justify the treatment. The determination of those conditions that should have had a complete record rests with the medical records committee of the staff.

QUESTION.—*We have an application for staff membership from a graduate of a medical school that was not approved at the time the applicant's degree was granted. The credentials committee believes him worthy of staff appointment, but our bylaws state the staff must be graduates of "approved" schools. What should our course be? M.D., Massachusetts.*

ANSWER.—Amend the staff bylaws. The model bylaws of the Joint Commission on Accreditation of Hospitals now state that a graduate be from an approved or recognized school of medicine with an M.D. or M.B. degree, etc. There are many worthy graduates from schools either in this country or in foreign lands who would be denied hospital privileges under the restricted wording. The word recognized implies recognition by the board of examiners of the individual state involved. An M.D. licensed by the state and eligible for membership in the local medical society is considered acceptable to the Joint Commission on Accreditation of Hospitals if the credentials committee of the hospital has evaluated him thoroughly and recommended staff appointment. Many are familiar with the Gallup Plan of Massachusetts, which was promulgated for physicians from nonapproved schools. These physicians work under supervision for varying lengths of time depending upon demonstrated ability. This plan has functioned very well.

QUESTION.—*What are the recommendations of the Joint Commission on Accreditation of Hospitals regarding signatures and/or initials on a clinical chart? What about a rubber stamp? M.D., California.*

ANSWER.—First of all, initials are as valid as a full signature in court or any place, providing that the initials can be identified as belonging to the physician involved. The physician should be consistent and not sign his full name one time and initial the next time. Only use one or the other as your means of authenticating the clinical entries on a chart. Using a full signature many times can become an irritating chore. There is no reason why a legible first or last initial used consistently is not sufficient. If a physician wishes to use a rubber stamp the commission has no objection. The physician should place in the hands of the hospital administration a signed statement to the fact that he is the only person who will have possession of the stamp and is the only one who will use it. A rubber stamp is most commonly used by a pathologist or radiologist for signature purposes. The use of the rubber stamp for the physician by his office nurse or secretary is not condoned, and its promiscuous use could lead to trouble. A court would not accept a rubber stamp signature if it could be proved that it was used by other than the person whose name it bore.

QUESTION.—*Will a hospital be given demerits by the commission on the scoring report if it is found that nurses' aides or practical nurses are being used by a hospital as the "scrub" nurse or clean nurse? M.D., Pennsylvania.*

ANSWER.—The work of a "scrub" nurse or clean nurse is considered to be mostly mechanical, and it is not necessary to use a graduate nurse in this capacity. This was proved by the armed services during the last war; they trained corpsmen or technicians to do this work, and they did a wonderful job. With the shortage of graduate nurses still critical, hospitals can alleviate the situation by training ancillary personnel to do some of the mechanics of nursing like those duties performed in operating rooms and nurseries. Never forget, however, that such persons must always be supervised by a trained graduate nurse.

QUESTION.—*Some of our staff physicians want to interpret the electrocardiographic examinations performed on their own patients. What is the recommendation of the Joint Commission on Accreditation of Hospitals in this respect? Internist, Ohio.*

ANSWER.—The interpretation of an electrocardiographic examination is much like any other work performed in the hospital. It is a privilege that should be granted to a physician or physicians by the credentials committee of the medical staff, taking into account the applicant's training, qualifications, experience, and demonstrated ability. There is no doubt that the value of such a test diminishes considerably if it is "read" by unqualified personnel. The interpreter's signed report should be a part of the patient's chart and part of the record. It is the privilege of the physician on the case to express any opinion or comment on the electrocardiogram in the progress notes if he so desires.

QUESTION.—*Is a cancer registry necessary in order that our hospital be approved? We have been told it is a requirement.* *M.D., Indiana.*

ANSWER.—No. The commission does not require a cancer clinic or a cancer registry in a hospital that is seeking accreditation. A firm selling printed forms for use as cancer registers has been guilty of making a misstatement concerning this matter. The correct statement should have been, "Those hospitals having cancer clinics and desiring American College of Surgeons approval for same must have, among other requirements, a cancer registry." This is a requirement of the College of Surgeons in their special program and has no bearing on accreditation by the commission.

MEDICAL STAFF MEETINGS

The following information concerning medical staff meetings is reproduced from the August bulletin of the Joint Commission on Accreditation of Hospitals, 660 N. Rush St., Chicago; Kenneth B. Babcock, M.D., director.

Medical Staff Meetings Are Important!

From the start of the American College of Surgeons Hospital Standardization Program in 1920, the holding of regular medical staff meetings has been one of the standards on which approval of a hospital has been based. In accepting the Standards for Hospital Accreditation established by the College, the Joint Commission on Accreditation of Hospitals endorsed this principle as sound and essential for good patient care.

The sole purpose of hospital medical staff meetings is to improve the quality of patient care by means of a critical review and evaluation of the work of the professional staff. This analysis must be done by the medical staff which should meet at frequent and regular intervals to accomplish this purpose.

Recognizing that differences exist in hospitals because of size, location, and medical staff organization, hospitals have a choice of *one* of the three following methods of fulfilling the medical staff meeting requirement:

1. *Monthly Meetings of the Entire Active Medical Staff.*

This method is particularly suited in the hospital of less than seventy-five beds which is not departmentalized. It is also well suited in the hospital where the medical staff is small and is organized to function as a committee of the whole.

2. *Monthly Departmental Meetings and Quarterly Meetings of the Entire Active Staff.*

This method may be adopted when a hospital is well organized and departmentalized, and when it has been found to be more effective than Choice 1 for adequate and efficient review of the work of the staff. More frequent departmental meetings will depend upon the size of the hospital and the number of patients treated. Many hospitals have found it advisable to hold weekly departmental meetings.

3. *Monthly or More Frequent Review of the Clinical Work by the Medical Records and Tissue Committee* (or by an Audit Committee which combines the functions of these two committees), *Plus Monthly Meetings of the Executive Committee of the Medical Staff and Quarterly Meetings of the Entire Active Medical Staff.*

If conscientiously carried out, this method is very effective in evaluating the quality of patient care.

Experience has shown that one of these three patterns of medical staff meetings will fit any hospital seeking accreditation, whether it be small or large, rural or urban, affiliated with a medical school or not.

There has been some confusion and misunderstanding among the medical profession and hospitals concerning the following aspects of hospital medical staff meetings:

1. *Frequency and Regularity of Meetings.* The regular monthly meetings as described in Choices 1, 2, or 3 with not less than twelve in each calendar year, are necessary for adequate and effective evaluation of patient care. This means that such meetings should be held during the summer vacation months, for patients are treated in the hospital during these periods and their care should be evaluated.

2. *Multiplicity of Meetings.* Numerous complaints have been voiced by the medical profession concerning the hardship of forced attendance at medical staff meetings of several hospitals to which they have appointments. This occurs because many physicians accept an impracticable multiplicity of active staff memberships. There is a growing feeling among the practicing profession that a physician should limit his active staff appointments to no more than two hospitals in order that he may best serve his patients and conserve his time and energy. If additional hospital facilities are desired by the physician, he may accept an associate, consulting, or courtesy staff appointment. Administrations of hospitals should cooperate with the medical profession by making beds readily available to physicians with other than active staff appointments.

3. *Combined Hospital Medical Staff Meetings.* In certain areas where the medical staff of two or more hospitals are identical, there may be a desire to combine the monthly staff meetings of the several hospitals into one time-saving meeting. This is not acceptable, for it defeats the prime objective of a medical staff meeting, the evaluation of the care given patients in a particular hospital.

4. *Attendance at Meetings.* Adequate and effective participation in the evaluation of patient care requires regular, conscientious attendance at meetings of the active medical staff, departments or committees. It is expected that members of the active medical staffs shall attend at least seventy-five per cent of these official meetings, unless excused by the Executive Committee of the medical staff for such exceptional conditions as sickness, absence from the community or because of medical emergencies.

5. The Standard of the Commission on the attendance of staff meetings pertains to the active medical staff members. It is the decision of the local hospital staff whether the attendance of associate staff members is required.

6. Departmental meetings and clinicopathologic conferences are not required by the Commission, although highly desirable and recommended. These are requirements of the Council on Medical Education and Hospitals of the American Medical Association for training programs.

Remember, the requirement for medical staff meetings of the Commission are minimum for quality patient care. Many hospital staffs exceed these requirements and for this they should be commended.

MEDICINE AND THE LAW

The Judicial Council has authorized the publication of the following opinions. These opinions, and others approved by the Judicial Council, will be published in "Medicine and the Law." These opinions will eventually be compiled and published separately as annotations to the Principles of Medical Ethics.

Question: A member of the American Medical Association has asked: May I indicate the location of my office, the nature of my practice, my office hours, and the like by the use of a sign located in the lobby of the building in which my offices are located?

Opinion: Chapter I, section 4 of the Principles of Medical Ethics proscribes the solicitation of patients, directly or indirectly, and points out that the most worthy and effective advertising is the establishment of a well-merited reputation for professional ability and fidelity. It states that "disregard of local customs and offenses against recognized ideals are unethical." It is the opinion of the Judicial Council that local customs vary from community to community, and therefore it is the obligation of the component medical society to determine whether in a given locality the use of such a sign would be an affront to the ideals of the community and bring discredit to the profession. It is the further opinion of the Council that both the physician who contemplates the use of such advertising and his component society should fully observe the precept of Chapter III, section 1 of the Principles, "A physician is expected to uphold the dignity and honor of his profession."

Question: A member of the American Medical Association has asked: I rendered professional service to a colleague who has medical care insurance. That colleague has offered me the insurance benefit he received to reimburse me for my expenses. May I ethically accept this remuneration?

Opinion: Chapter IV, sections 1 and 2 of the Principles state that a physician should cheerfully and without recompense give his professional services to physicians or their dependents. These sections recognize, however, that such services may take the attending physician away from his accustomed field of practice and cause him pecuniary loss. They provide, therefore, that if the physician who received medical care is in easy financial circumstances he may offer compensation to the physician who attended him for traveling expenses, which compensation may include an amount to provide in part for loss of time away from accustomed practice. The Judicial Council in its report to the House of Delegates at its Los Angeles, 1951, session stated, "If a physician or his dependents have insurance providing for medical or surgical care, then, in the opinion of the Council, a physician who renders such service may accept the insurance benefits without violating the provisions of Chapter III [now Chapter IV], sections 1 and 2 of the Principles." The Council reaffirms its 1951 statement.

Question: A member of the American Medical Association has asked: May I ethically obligate myself to render professional medical service for a fee that will be contingent upon the success or failure of litigation in which my professional services will play a part?

Opinion: Chapter I, section 6 of the Principles of Medical Ethics provides that remuneration received for professional services rendered the patient should be in the form and amount specifically announced to the patient at the time the service is rendered, or in the form of a subsequent statement. It is the opinion of the Judicial Council that the contracting for, or acceptance of, a contingent fee by a doctor, which is based on the outcome of litigation, whether settled or adjudicated, is unethical. The Judicial Council would point out that the laborer is worthy of his hire and that the physician, having only his services to sell, has an obligation to place a fair value on those services. Ethically this value should be based upon the value of the service rendered by the physician to the patient and not upon the uncertain outcome of a contingency that does not in any way relate to the value of the service. Furthermore, the Council is of the opinion that the physician's obligation to uphold the dignity and honor of his profession precludes him from entering into an arrangement of this nature because, if a fee is contingent upon the successful outcome of a claim, there is the ever-present danger that the physician may become less of a healer and more of an advocate—a situation that does not uphold the dignity of the profession of medicine.

PUBLIC RELATIONS

Public Attitudes About Physicians and Medical Care

Although random shots in the dark sometimes hit the mark, a clearly illuminated objective is a lot easier to hit. This is particularly true in public relations activities. If you know where to aim, you will come a lot closer to the bull's-eye and use less ammunition to do it. In order to spotlight more vividly the areas requiring concentrated public relations action, the Los Angeles County Medical Association has completed a public opinion survey in which the attitudes of the public and opinion leaders about doctors and medical care are assessed.

The study, involving a scientifically drawn sample of 360 people, elicited information in three areas: (1) humanitarianism of doctors, (2) doctors' fees, and (3) surgeons' fees versus hospital charges. A great deal of specific information in regard to public understanding of physicians and their work, attitudes about health insurance, and areas of public dissatisfaction was accumulated. One of the most encouraging things about the survey was that people do not take as dim a view of doctors as the doctors themselves sometimes think. In their ratings for humanitarianism physicians fared well with the public. More than 85% of those interviewd had positive attitudes about physicians in this respect as compared with less than 5% who had negative attitudes.

(According to survey experts, a finding of less than 10% is considered insignificant.) Over 80% of those interviewed, for example, felt physicians in general have a kindly, sympathetic interest in those who are ill or injured.

How do people feel about doctors as community leaders? Between 40% and 50% expressed the belief that doctors in general take about their share or more than their share of responsibility in community activities. Here a significant contrast in feeling was shown between members of the general public and opinion leaders. While less than 8% of the public said doctors shouldered less than their share of community responsibility, 40% of the opinion leaders said doctors did not do their share. Because dissatisfaction about long waits in doctors' offices is often cited as a leading factor creating poor public relations, the study probed opinions on this subject. The public reported that doctors keep people waiting an average of 5 out of 10 times, but, amazingly enough, over 80% felt this was reasonable. An average of 22 minutes was considered a "reasonable" wait to see the doctor.

Three important points were brought out in the study. First, the majority of those surveyed said they think the medical profession is doing a good job in informing the public about new methods, treatments, and medicines. Second, over one-third of the respondents expressed a desire to discuss fees in advance of treatment. Third, an overwhelming majority (70%) expressed a desire for itemized medical bills. Yet the picture painted by those surveyed was not all quite so rosy. Glaring misconceptions about certain aspects of medical practice were revealed along with some definitely unfavorable attitudes about the practice of medicine. These are the trouble spots upon which Los Angeles physicians will concentrate their public relations efforts.

Although the study showed that over 60% of the people think doctors' fees are reasonable, there are many areas of dissatisfaction in regard to costs. Many said that medical costs have risen in greater proportion than other costs, revealing fairly widespread ignorance of the facts. Another significant finding was that about 22% of the general public and 48% of the opinion leaders said they knew of individuals requiring medical treatment who were not receiving it because doctors' fees alone are too high. The effect of hearsay and rumor on public opinion was clearly shown in the answers to questions about physicians' fees. Between 88% and 89% said that the last time they went to a doctor his fee was reasonable. Yet, when the same group was asked whether doctors' fees in general were reasonable, only 60% said yes. Hospital fees, in comparison, were listed as unreasonable by almost 48% of the general public and by 35% of the opinion leaders. How do people compare surgeons' fees and hospital fees? About 40% of the general public and 31% of the opinion leaders said surgeons' fees were greater than hospital fees. A slightly larger percentage of the general public (43%) and the same percentage of opinion leaders felt hospital charges were greater.

A definite lack of information was revealed by the fact that between 55% and 60% of the public could not correctly define "D.O." and "D.C." More serious misconceptions were uncovered by the finding that one-third of the general public believed that doctors get a rebate or kickback from druggists on prescriptions. In addition, about 26% of the general public and 15% of the opinion leaders said there was a lot of unnecessary surgery performed by doctors in the Los Angeles area. About 26% of the public and 49% of the leaders felt there was a little unnecessary surgery performed. One encouraging finding was that 86% of the general public and 92% of the opinion leaders had heard of the Los Angeles County Medical Association and the American Medical Association and about 70% of both groups had heard of the California Medical Association.

Public Relations Problem into Purposeful Project

Back in 1951 physicians in Phoenix, Ariz., became disturbed about the inadequate facilities for caring for patients in local rest homes. Members of the Maricopa County Medical Society, deciding to do something about the situation, launched a study of every rest home in the county, and, on the basis of additional information provided by other states and counties, compiled a set of standards for nursing and boarding homes. Enlisting the cooperation of the city fire department and sanitary officials, physicians conducted a campaign to eliminate fire hazards and to make sure food preparation and sanitary facilities in these homes met the standards.

Home operators in general were cooperative and attempted to make improvements. A 30-day period elapsed after preliminary checks had been made and home operators had been notified of the changes necessary to meet the society's standards. At the end of this period the medical society in a lengthy report protested vigorously to city officials about the deficiencies still existing in some homes. As a result, city, county, and state health departments have assumed responsibility for licensing and enforcing code standards. Out of the four-year campaign sparked and brought to a happy conclusion by Phoenix physicians has come an even more lasting achievement—a new county rest home is being erected on the grounds of the present county hospital.

PRoblem Corner

At the conclusion of his residency a young doctor moved to another state and secured a license to practice medicine. He immediately found himself faced with a problem. The local Lions Club in the little town in which he was setting up practice wanted to help him get started. Its members offered to print and circulate announcement cards to townspeople. The young doctor was uncertain whether such an action was ethical, and there was no other doctor practicing in the town to provide him with an answer. Fortunately, he checked with the county medical society and learned that such practices are generally based upon local custom and in his particular area the procedure would have been frowned upon by other physicians.

Some public relations problems are intraprofessional rather than external in nature. Hasty or ill-advised actions by physicians that incur the disapproval of other doctors in the area by flouting local custom create just such intraprofessional public relations problems. The best advice in such cases is this: when in doubt, check with your local society.

MEDICAL NEWS

CALIFORNIA

Students Pledge Financial Aid.—According to Dr. Ewing L. Turner, president of the Los Angeles County Medical Association, the pledging by medical students of $264,000 toward construction of the new Southern California Medical Center "has no parallel in the history of medical education." The sum was promised by 270 students of the University of Southern California School of Medicine, Los Angeles, who pledged to pay their money within three years after entering practice. Of the freshman and junior classes, 100% pledged. Only 3 of the 270 students in the school did not sign pledge cards, and 2 of these indicated they would do so when they actually entered practice. The average pledge was $1,000.

More Rabies in Animals.—According to a statement by Dr. Malcolm H. Merrill, state director of public health, "The state is now facing the largest and the most geographically extensive reservoir of animal rabies infection that it has experienced in many years, with rabies endemic in 22 counties." A statewide tally of 165 confirmed cases of animal rabies to July 20 disclosed that the city and county of Los Angeles accounted for nearly half of all rabies reported in California. There were 43 diagnosed cases of animal rabies in the city of Los Angeles between Jan. 1 and July 20—more cases than in any similar period since 1948. All rabies cases in Los Angeles were found among dogs; elsewhere in the state, 83 cases were confirmed among other animals, including cows, skunks, foxes, bobcats, and a goat. A statewide meeting on the problem was held recently in Berkeley.

Course in Aviation Medicine.—The University of California Extension will offer a course in aviation medicine Oct. 26-28, 9-12 a. m. and 1-5 p. m., in the Religious Conference Building, 900 Hilgard Ave., Los Angeles. The course, which is open to graduates of approved medical schools, is designed for the doctor who examines the student and private pilot as well as for the doctor who is a flight surgeon. Speakers at a dinner meeting on Wednesday will be Dr. Stafford L. Warren, Los Angeles, and Col. Richard L. Bohannon, M. C., U. S. A. F. In addition to lectures on aviation toxicology, psychology, and otolaryngology, the course will include a field trip to Lockheed Aircraft Corporation, Burbank. Dr. Bruce V. Leamer, Los Angeles, is chairman of the course. The fee of $50 will include one dinner meeting. Applications should be addressed to Dr. Thomas H. Sternberg, Assistant Dean for Postgraduate Medical Education, Medical Extension, University of California, Los Angeles 24.

CONNECTICUT

Hartford Medical Society Fall Lectures.—The first lecture in the Hartford Medical Society fall series, "Metabolic Considerations in Mental Disorders," was delivered on Oct. 3 by Dr. Mark D. Altschule, Waverley, Mass. Lectures for 1955, to be delivered at the Hunt Memorial, 38 Prospect St., Hartford, 8:30 p. m., include:

Oct. 17, Evaluation of Therapy in Disease, Stewart Wolf, Oklahoma City.

Nov. 7, Immunohematology in Clinical Practice, William Dameshek, Boston.

Nov. 21, Diagnosis and Treatment of Tumors of the Soft Somatic Tissues, George T. Pack, New York.

Dec. 5, Poliomyelitis—1955, Louis Weinstein, Boston.

All physicians are invited to attend.

Arthritis Study Unit.—The purposes of the Arthritis Study Unit of Yale University School of Medicine, which is made up of faculty members, are to stimulate teaching and research in arthritis and to hold conferences at which scientific papers are presented. The unit announces the following lectures, 3:30-4:30 p. m., in the Fitkin Amphitheatre, Yale-New Haven Medical Center:

Oct. 20, Significant Clinical Remissions in Rheumatoid Arthritis Resulting from Hypersensitivity Produced by Gold Salt Therapy, Theodore B. Bayles, Boston.

Nov. 17, Distinction Between Rheumatoid Arthritis and Systemic Lupus Erythematosus, Charles Ragan, New York.

Dec. 15, Globulin Factors in the Sensitized Sheep Cell Agglutination Reaction, Morris Ziff, New York.

DELAWARE

State Medical Meeting in Wilmington.—The Medical Society of Delaware will hold its annual meeting at the Delaware Academy of Medicine in Wilmington Oct. 17-18. After welcoming remarks by Dr. Norman L. Cutler, Wilmington, president, New Castle County Medical Society, and Dr. Victor D. Washburn, Wilmington, president, Delaware Academy of Medicine, the presidential address will be delivered by Dr. Lewis B. Flinn, Wilmington, who will serve as moderator for a panel discussion, "Vitamins and Other Nutrition Factors in Clinical Practice," at 9 p. m. Monday; a panel discussion, "Current Concepts of Virus Disease in the Delaware Area," at 10:45 a. m. Tuesday; and a panel discussion at 3:40 p. m. on the management of vascular disease. Out-of-state speakers include: Drs. Robert S. Goodhart, New York; Winslow T. Tompkins, Robert G. Ravdin, Robert Kaye, Joseph Stokes Jr., Werner Henle, John P. Hubbard, Samuel B. Hadden, Charles P. Bailey, and Harry F. Zinsser, Philadelphia; Dorothy M. Horstmann, New Haven, Conn.; and Henry T. Bahnson, Baltimore. A reception, 6:45 p. m. Tuesday, will precede the annual banquet, at which an address will be delivered by Dr. Edward L. Bortz, Philadelphia, Past-President of the American Medical Association, who will have as his subject "Significant Trends in Medical Education." The woman's auxiliary will meet simultaneously at the DuPont Country Club.

GEORGIA

Dr. Pund on Lecture Tour.—Dr. Edgar R. Pund, president of the Medical College of Georgia, Augusta, has been appointed consultant to the surgeon general for a 30 day inspection and lecture tour of medical facilities of the U. S. Army in the Far East. Dr. Pund left Washington, D. C., Sept. 30, and at Camp Zama, near Tokyo, he held a conference with the chiefs of staff. He will lecture at the 406th Medical General Laboratory, 121st Evacuation Hospital, National Institute for Prevention of Infectious Diseases, Seoul National University Medical School, National Chemical Laboratories, 38th Parallel Medical Society, Hiroshima Medical School, Kyoto University Medical School, Tokyo University School of Medicine, and the Japanese-American Society of Pathologists.

ILLINOIS

Annual General Practitioners Meeting.—The eighth annual scientific assembly of the Illinois Academy of General Practice will be held Oct. 25-27 at the Illinois State Armory, Springfield, under the presidency of Dr. Dewey M. Roberts, Alton. Tuesday's program at the Hotel Leland will conclude at 7:15 p. m. with the delegates' dinner. At 11 a. m. Wednesday, during the scientific assembly at the armory, Dr. Charles O. McCormick Sr., Indianapolis, will serve as moderator for a round-table on prolonged labor, which will have as participants Drs. John F. Spahr Jr. and Charles O. McCormick Jr., Indianapolis, and Dr. Robert M. Myers, Kansas City, Mo. On Wednesday and Thursday at 12:15 p. m. there will be a round-table luncheon at the Hotel Leland, with Dr. Dewey M. Roberts, president, and Dr. George S. Schwerin, Chicago, president-elect, as moderators. A clinicopathological conference, 3:45 p. m. Wednesday, will have as participants Dr. William H. Requarth, Decatur, and Dr. Harold M. Feinberg, Chicago, with Dr. Coye C. Mason, Chicago, as

---

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

moderator. At the banquet Dr. John R. Fowler, Barre, Mass., president, American Academy of General Practice, will discuss "The Good Physician." A panel discussion on the drug treatment of hypertension, 3:15 p. m. Thursday, will have as moderator Dr. Michael Serio, Chicago, and will include presentation of "Clinical Pharmacology of the Newer Hypotensive Drugs" by Dr. Charles W. Crumpton, Madison; "Drugs of Choice in the Treatment of Hypertension Associated with Heart Disease and Impaired Renal Function" by Dr. Alfred D. Dennison Jr., Indianapolis; and "The Drug Treatment of Primary Essential Hypertension" by Dr. James H. Currens, Boston. Presentations by out-of-state speakers include:

A Manikin Demonstration Lecture Covering the Common Obstetrical Maneuvers and the Use of Forceps, John F. Spahr Jr., Indianapolis.
A Study of the Infertile Couple, Charles O. McCormick Jr., Indianapolis.
Office Gynecologic Problems, Robert M. Myers, Kansas City, Mo.
Management of Threatened and Habitual Abortion, Robert B. Greenblatt, Augusta, Ga.
Using the Laboratory in Liver Diseases, William A. Sodeman, Columbia, Mo.
The Diarrheal Syndrome, Jerome Weiss, New York.
Diagnostic Problems in Gouty Rheumatoid Arthritis, Robert L. McClendon, Louisville, Ky.
The Arthritis Problem and the General Practitioner, Kenneth D. Bryson, Cleveland.
Arthritis Problems Discussed, Robert L. McClendon, Louisville, Ky., and Kenneth D. Bryson, Cleveland.

Chicago

University News.—The University of Illinois College of Medicine has announced the promotion of Dr. Harold Shellow from assistant professor of dermatology to associate professor.

Lecture on Noise.—The Chicago Society of Industrial Medicine and Surgery and the Casualty Adjusters Association of Chicago will hold a joint meeting at the Bismarck Hotel Oct. 19, 7:30 p. m. "The Wisconsin Story of the Industrial Noise Problem" will be presented by Dr. Meyer S. Fox of Marquette University School of Medicine, Milwaukee.

Medical History Meeting.—The Society of Medical History of Chicago will hold an open meeting Oct. 19, 8 p. m., at the Institute of Medicine (fourth floor, 86 E. Randolph St.). The program includes:

Nikolai Ivanovich Pirgov—Anatomist, Surgeon, Educator, George Halperin.
The Migration of Diseases, Dieter Koch-Weser.
John Keats, a Medical Truant, Miss Esther Vincent.

All are welcome.

Gynecologic Society Meeting.—The regular meeting of the Chicago Gynecological Society will be held at the Knickerbocker Hotel Oct. 21, 8 p. m. The sixth annual Joseph L. Baer Lecture, "The Management of Cervical Carcinoma," will be delivered by Dr. Joe V. Meigs, clinical professor of gynecology, Harvard Medical School, Boston. The clinical meeting will be held at Passavant Memorial Hospital, 303 E. Superior St., 9 a. m., on the same day.

INDIANA

State Medical Meeting.—The Indiana State Medical Association will hold its 106th annual convention at the French Lick Springs Hotel, French Lick, Oct. 16-19. Dr. Walter L. Portteus, Franklin, will deliver the presidential address Tuesday at 7 p. m. Tuesday round-table discussions, 10:30-12 noon, will be presented on (1) Obstetrics and Gynecology (Dr. Sprague H. Gardiner, Indianapolis, moderator); (2) Daily Dermatological Dilemmas (Dr. Lawrence G. Beinhauer, Pittsburgh, moderator); (3) Fluid and Electrolyte Balance (Dr. William D. Snively Jr., Evansville, moderator); and (4) Management of Hypertension (film from Wyeth Laboratories, Philadelphia). Wednesday round-table discussions, 10:30-12 noon, include (1) Modern Day Burns—Their Treatment (Dr. Harold M. Trusler, Indianapolis, moderator); (2) Medical Treatment—Industrial Cases (Dr. Eli S. Jones, Hammond, moderator); (3) Collagen Diseases (Dr. John G. Rukavina, Ann Arbor, Mich., moderator); and (4) Radioisotopes (Dr. John A. Campbell, Indianapolis, moderator). At the general meeting Tuesday, 2 p. m., traffic accidents will be discussed. Sgt. Elmer Paul, Indiana State Police, Indianapolis, and John O. Moore, director, Indiana-Cornell Automotive Crash Injury Research, Cornell University Medical College, New York, will discuss "How They Are Killed and Injured." "Traffic Accidents—Their Treatment" will be considered at 3:30 p. m. by Dr. Robert E. Slemmer, Cincinnati (Neurological Aspects); Dr. Claire L. Straith, Detroit (Maxillofacial Injuries); Dr. Richard W. Zollinger, Columbus, Ohio (General Surgery); and Dr. George J. Garceau, Indianapolis (Orthopedic Injuries). The meeting of the section on medicine Wednesday, 2 p. m., will include presentation of "Familial Primary Systemic Amyloidosis: A Clinical, Genetic, and Biochemical Study" by Dr. Rukavina. Dr. Brant B. Sankey, Cleveland, Ohio, will speak before the section on anesthesiology, which meets simultaneously. Dr. C. Paul Hodgkinson, Detroit, will serve as moderator for the round-table discussions, 1:30 p. m. Wednesday, during the meeting of the section on obstetrics and gynecology. The section on public health and preventive medicine will hold a round-table in conjunction with the sections on medicine and general practice in the Main Convention Hall, 3:30-5 p. m. Wednesday. The sections on ophthalmology and otolaryngology, general practice, and surgery will also meet at 2 p. m. Wednesday. Dr. Dwight H. Murray, Napa, Calif., President-Elect, American Medical Association, will speak at the annual dinner Wednesday, 7 p. m. The program includes instructional courses from 2 to 4 p. m. Monday and from 8:30-10:30 a. m. Tuesday and Wednesday. The annual golf tournament will be held at 8 a. m. Monday at the French Lick Hill course and the annual trap and skeet shoot, 9 a. m. at the French Lick Springs Trap and Skeet Club. The woman's auxiliary will meet Oct. 17-19.

KANSAS

Dr. Dock to Give Porter Lectures.—The University of Kansas School of Medicine, Kansas City, announces the 1955 course of Porter Lectures to be given by Dr. William Dock, professor of medicine, State University of New York College of Medicine at New York City, Brooklyn. On Oct. 18 at 4 p. m. in the J. R. Battenfeld Jr. Memorial Auditorium, Kansas City, Dr. Dock will present "Clinical Significance of Pulsations Evoked by the Heart Beat." He will discuss "Coronary Disease—The Professor's Friend" in Strong Hall, Lawrence campus, Oct. 19, 11 a. m., and at 4 p. m. the same day he will present "The Production of Sounds by Normal and Diseased Hearts" at the Battenfeld auditorium. Physicians and students are invited.

MASSACHUSETTS

Society of Examining Physicians.—The fall supper meeting of the Massachusetts Society of Examining Physicians will be held at the Harvard Club in Boston, 6 p. m. Oct. 19. A symposium on "The Painful Neck Syndrome" will be presented by Drs. Richard M. Kilfoyle, Boston, orthopedic surgeon; Walter R. Wegner, Boston, neurosurgeon; Albert M. Moloney, Boston, roentgenologist; and Arthur L. Watkins, Boston, consultant in physical medicine. All physicians are cordially invited.

MINNESOTA

Dr. Aldrich Returns to Chicago.—Dr. C. Knight Aldrich, associate professor of psychiatry, University of Minnesota Medical School, Minneapolis, has been appointed chairman, department of psychiatry, University of Chicago School of Medicine. A native of Chicago, Dr. Aldrich served his internship at Cook County Hospital. For five years he was a psychiatrist with the U. S. Public Health Service. He joined the faculty of the University of Minnesota Medical School in 1947. He also has served as a consultant to the Veteran's Administration Hospital, Minneapolis, and to the Family and Children's Service of Minneapolis. He is the author of "Psychiatry for the Family Doctor," the Medical Book Guild's August selection.

MISSISSIPPI

Two Professors Appointed.—The University of Mississippi School of Medicine in Jackson announces the appointment of Dr. Robert D. Sloan, who has been on the staff at Johns Hopkins University School of Medicine, Baltimore, as professor of

MEDICAL NEWS

CALIFORNIA

Students Pledge Financial Aid.—According to Dr. Ewing L. Turner, president of the Los Angeles County Medical Association, the pledging by medical students of $264,000 toward construction of the new Southern California Medical Center "has no parallel in the history of medical education." The sum was promised by 270 students of the University of Southern California School of Medicine, Los Angeles, who pledged to pay their money within three years after entering practice. Of the freshman and junior classes, 100% pledged. Only 3 of the 270 students in the school did not sign pledge cards, and 2 of these indicated they would do so when they actually entered practice. The average pledge was $1,000.

More Rabies in Animals.—According to a statement by Dr. Malcolm H. Merrill, state director of public health, "The state is now facing the largest and the most geographically extensive reservoir of animal rabies infection that it has experienced in many years, with rabies endemic in 22 counties." A statewide tally of 165 confirmed cases of animal rabies to July 20 disclosed that the city and county of Los Angeles accounted for nearly half of all rabies reported in California. There were 43 diagnosed cases of animal rabies in the city of Los Angeles between Jan. 1 and July 20—more cases than in any similar period since 1948. All rabies cases in Los Angeles were found among dogs; elsewhere in the state, 83 cases were confirmed among other animals, including cows, skunks, foxes, bobcats, and a goat. A statewide meeting on the problem was held recently in Berkeley.

Course in Aviation Medicine.—The University of California Extension will offer a course in aviation medicine Oct. 26-28, 9-12 a. m. and 1-5 p. m., in the Religious Conference Building, 900 Hilgard Ave., Los Angeles. The course, which is open to graduates of approved medical schools, is designed for the doctor who examines the student and private pilot as well as for the doctor who is a flight surgeon. Speakers at a dinner meeting on Wednesday will be Dr. Stafford L. Warren, Los Angeles, and Col. Richard L. Bohannon, M. C., U. S. A. F. In addition to lectures on aviation toxicology, psychology, and otolaryngology, the course will include a field trip to Lockheed Aircraft Corporation, Burbank. Dr. Bruce V. Leamer, Los Angeles, is chairman of the course. The fee of $50 will include one dinner meeting. Applications should be addressed to Dr. Thomas H. Sternberg, Assistant Dean for Postgraduate Medical Education, Medical Extension, University of California, Los Angeles 24.

CONNECTICUT

Hartford Medical Society Fall Lectures.—The first lecture in the Hartford Medical Society fall series, "Metabolic Considerations in Mental Disorders," was delivered on Oct. 3 by Dr. Mark D. Altschule, Waverley, Mass. Lectures for 1955, to be delivered at the Hunt Memorial, 38 Prospect St., Hartford, 8:30 p. m., include:

Oct. 17, Evaluation of Therapy in Disease, Stewart Wolf, Oklahoma City.

Nov. 7, Immunohematology in Clinical Practice, William Dameshek, Boston.

Nov. 21, Diagnosis and Treatment of Tumors of the Soft Somatic Tissues, George T. Pack, New York.

Dec. 5, Poliomyelitis—1955, Louis Weinstein, Boston.

All physicians are invited to attend.

Arthritis Study Unit.—The purposes of the Arthritis Study Unit of Yale University School of Medicine, which is made up of faculty members, are to stimulate teaching and research in arthritis and to hold conferences at which scientific papers are presented. The unit announces the following lectures, 3:30-4:30 p. m., in the Fitkin Amphitheatre, Yale-New Haven Medical Center:

Oct. 20, Significant Clinical Remissions in Rheumatoid Arthritis Resulting from Hypersensitivity Produced by Gold Salt Therapy, Theodore B. Bayles, Boston.

Nov. 17, Distinction Between Rheumatoid Arthritis and Systemic Lupus Erythematosus, Charles Ragan, New York.

Dec. 15, Globulin Factors in the Sensitized Sheep Cell Agglutination Reaction, Morris Ziff, New York.

DELAWARE

State Medical Meeting in Wilmington.—The Medical Society of Delaware will hold its annual meeting at the Delaware Academy of Medicine in Wilmington Oct. 17-18. After welcoming remarks by Dr. Norman L. Cutler, Wilmington, president, New Castle County Medical Society, and Dr. Victor D. Washburn, Wilmington, president, Delaware Academy of Medicine, the presidential address will be delivered by Dr. Lewis B. Flinn, Wilmington, who will serve as moderator for a panel discussion, "Vitamins and Other Nutrition Factors in Clinical Practice," at 9 p. m. Monday; a panel discussion, "Current Concepts of Virus Disease in the Delaware Area," at 10:45 a. m. Tuesday; and a panel discussion at 3:40 p. m. on the management of vascular disease. Out-of-state speakers include: Drs. Robert S. Goodhart, New York; Winslow T. Tompkins, Robert G. Ravdin, Robert Kaye, Joseph Stokes Jr., Werner Henle, John P. Hubbard, Samuel B. Hadden, Charles P. Bailey, and Harry F. Zinsser, Philadelphia; Dorothy M. Horstmann, New Haven, Conn.; and Henry T. Bahnson, Baltimore. A reception, 6:45 p. m. Tuesday, will precede the annual banquet, at which an address will be delivered by Dr. Edward L. Bortz, Philadelphia, Past-President of the American Medical Association, who will have as his subject "Significant Trends in Medical Education." The woman's auxiliary will meet simultaneously at the DuPont Country Club.

GEORGIA

Dr. Pund on Lecture Tour.—Dr. Edgar R. Pund, president of the Medical College of Georgia, Augusta, has been appointed consultant to the surgeon general for a 30 day inspection and lecture tour of medical facilities of the U. S. Army in the Far East. Dr. Pund left Washington, D. C., Sept. 30, and at Camp Zama, near Tokyo, he held a conference with the chiefs of staff. He will lecture at the 406th Medical General Laboratory, 121st Evacuation Hospital, National Institute for Prevention of Infectious Diseases, Seoul National University Medical School, National Chemical Laboratories, 38th Parallel Medical Society, Hiroshima Medical School, Kyoto University Medical School, Tokyo University School of Medicine, and the Japanese-American Society of Pathologists.

ILLINOIS

Annual General Practitioners Meeting.—The eighth annual scientific assembly of the Illinois Academy of General Practice will be held Oct. 25-27 at the Illinois State Armory, Springfield, under the presidency of Dr. Dewey M. Roberts, Alton. Tuesday's program at the Hotel Leland will conclude at 7:15 p. m. with the delegates' dinner. At 11 a. m. Wednesday, during the scientific assembly at the armory, Dr. Charles O. McCormick Sr., Indianapolis, will serve as moderator for a round-table on prolonged labor, which will have as participants Drs. John F. Spahr Jr. and Charles O. McCormick Jr., Indianapolis, and Dr. Robert M. Myers, Kansas City, Mo. On Wednesday and Thursday at 12:15 p. m. there will be a round-table luncheon at the Hotel Leland, with Dr. Dewey M. Roberts, president, and Dr. George S. Schwerin, Chicago, president-elect, as moderators. A clinicopathological conference, 3:45 p. m. Wednesday, will have as participants Dr. William H. Requarth, Decatur, and Dr. Harold M. Feinberg, Chicago, with Dr. Coye C. Mason, Chicago, as

---

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

moderator. At the banquet Dr. John R. Fowler, Barre, Mass., president, American Academy of General Practice, will discuss "The Good Physician." A panel discussion on the drug treatment of hypertension, 3:15 p. m. Thursday, will have as moderator Dr. Michael Serio, Chicago, and will include presentation of "Clinical Pharmacology of the Newer Hypotensive Drugs" by Dr. Charles W. Crumpton, Madison; "Drugs of Choice in the Treatment of Hypertension Associated with Heart Disease and Impaired Renal Function" by Dr. Alfred D. Dennison Jr., Indianapolis; and "The Drug Treatment of Primary Essential Hypertension" by Dr. James H. Currens, Boston. Presentations by out-of-state speakers include:

A Manikin Demonstration Lecture Covering the Common Obstetrical Maneuvers and the Use of Forceps, John F. Spahr Jr., Indianapolis.
A Study of the Infertile Couple, Charles O. McCormick Jr., Indianapolis.
Office Gynecologic Problems, Robert M. Myers, Kansas City, Mo.
Management of Threatened and Habitual Abortion, Robert B. Greenblatt, Augusta, Ga.
Using the Laboratory in Liver Diseases, William A. Sodeman, Columbia, Mo.
The Diarrheal Syndrome, Jerome Weiss, New York.
Diagnostic Problems in Gouty Rheumatoid Arthritis, Robert L. McClendon, Louisville, Ky.
The Arthritis Problem and the General Practitioner, Kenneth D. Bryson, Cleveland.
Arthritis Problems Discussed, Robert L. McClendon, Louisville, Ky., and Kenneth D. Bryson, Cleveland.

Chicago

University News.—The University of Illinois College of Medicine has announced the promotion of Dr. Harold Shellow from assistant professor of dermatology to associate professor.

Lecture on Noise.—The Chicago Society of Industrial Medicine and Surgery and the Casualty Adjusters Association of Chicago will hold a joint meeting at the Bismarck Hotel Oct. 19, 7:30 p. m. "The Wisconsin Story of the Industrial Noise Problem" will be presented by Dr. Meyer S. Fox of Marquette University School of Medicine, Milwaukee.

Medical History Meeting.—The Society of Medical History of Chicago will hold an open meeting Oct. 19, 8 p. m., at the Institute of Medicine (fourth floor, 86 E. Randolph St.). The program includes:

Nikolai Ivanovich Pirgov—Anatomist, Surgeon, Educator, George Halperin.
The Migration of Diseases, Dieter Koch-Weser.
John Keats, a Medical Truant, Miss Esther Vincent.

All are welcome.

Gynecologic Society Meeting.—The regular meeting of the Chicago Gynecological Society will be held at the Knickerbocker Hotel Oct. 21, 8 p. m. The sixth annual Joseph L. Baer Lecture, "The Management of Cervical Carcinoma," will be delivered by Dr. Joe V. Meigs, clinical professor of gynecology, Harvard Medical School, Boston. The clinical meeting will be held at Passavant Memorial Hospital, 303 E. Superior St., 9 a. m., on the same day.

INDIANA

State Medical Meeting.—The Indiana State Medical Association will hold its 106th annual convention at the French Lick Springs Hotel, French Lick, Oct. 16-19. Dr. Walter L. Portteus, Franklin, will deliver the presidential address Tuesday at 7 p. m. Tuesday round-table discussions, 10:30-12 noon, will be presented on (1) Obstetrics and Gynecology (Dr. Sprague H. Gardiner, Indianapolis, moderator); (2) Daily Dermatological Dilemmas (Dr. Lawrence G. Beinhauer, Pittsburgh, moderator); (3) Fluid and Electrolyte Balance (Dr. William D. Snively Jr., Evansville, moderator); and (4) Management of Hypertension (film from Wyeth Laboratories, Philadelphia). Wednesday round-table discussions, 10:30-12 noon, include (1) Modern Day Burns—Their Treatment (Dr. Harold M. Trusler, Indianapolis, moderator); (2) Medical Treatment—Industrial Cases (Dr. Eli S. Jones, Hammond, moderator); (3) Collagen Diseases (Dr. John G. Rukavina, Ann Arbor, Mich., moderator); and (4) Radioisotopes (Dr. John A. Campbell, Indianapolis, moderator). At the general meeting Tuesday, 2 p. m., traffic accidents will be discussed. Sgt. Elmer Paul, Indiana State Police, Indianapolis, and John O. Moore, director, Indiana-Cornell Automotive Crash Injury Research, Cornell University Medical College, New York, will discuss "How They Are Killed and Injured." "Traffic Accidents—Their Treatment" will be considered at 3:30 p. m. by Dr. Robert E. Slemmer, Cincinnati (Neurological Aspects); Dr. Claire L. Straith, Detroit (Maxillofacial Injuries); Dr. Richard W. Zollinger, Columbus, Ohio (General Surgery); and Dr. George J. Garceau, Indianapolis (Orthopedic Injuries). The meeting of the section on medicine Wednesday, 2 p. m., will include presentation of "Familial Primary Systemic Amyloidosis: A Clinical, Genetic, and Biochemical Study" by Dr. Rukavina. Dr. Brant B. Sankey, Cleveland, Ohio, will speak before the section on anesthesiology, which meets simultaneously. Dr. C. Paul Hodgkinson, Detroit, will serve as moderator for the round-table discussions, 1:30 p. m. Wednesday, during the meeting of the section on obstetrics and gynecology. The section on public health and preventive medicine will hold a round-table in conjunction with the sections on medicine and general practice in the Main Convention Hall, 3:30-5 p. m. Wednesday. The sections on ophthalmology and otolaryngology, general practice, and surgery will also meet at 2 p. m. Wednesday. Dr. Dwight H. Murray, Napa, Calif., President-Elect, American Medical Association, will speak at the annual dinner Wednesday, 7 p. m. The program includes instructional courses from 2 to 4 p. m. Monday and from 8:30-10:30 a. m. Tuesday and Wednesday. The annual golf tournament will be held at 8 a. m. Monday at the French Lick Hill course and the annual trap and skeet shoot, 9 a. m. at the French Lick Springs Trap and Skeet Club. The woman's auxiliary will meet Oct. 17-19.

KANSAS

Dr. Dock to Give Porter Lectures.—The University of Kansas School of Medicine, Kansas City, announces the 1955 course of Porter Lectures to be given by Dr. William Dock, professor of medicine, State University of New York College of Medicine at New York City, Brooklyn. On Oct. 18 at 4 p. m. in the J. R. Battenfeld Jr. Memorial Auditorium, Kansas City, Dr. Dock will present "Clinical Significance of Pulsations Evoked by the Heart Beat." He will discuss "Coronary Disease—The Professor's Friend" in Strong Hall, Lawrence campus, Oct. 19, 11 a. m., and at 4 p. m. the same day he will present "The Production of Sounds by Normal and Diseased Hearts" at the Battenfeld auditorium. Physicians and students are invited.

MASSACHUSETTS

Society of Examining Physicians.—The fall supper meeting of the Massachusetts Society of Examining Physicians will be held at the Harvard Club in Boston, 6 p. m. Oct. 19. A symposium on "The Painful Neck Syndrome" will be presented by Drs. Richard M. Kilfoyle, Boston, orthopedic surgeon; Walter R. Wegner, Boston, neurosurgeon; Albert M. Moloney, Boston, roentgenologist; and Arthur L. Watkins, Boston, consultant in physical medicine. All physicians are cordially invited.

MINNESOTA

Dr. Aldrich Returns to Chicago.—Dr. C. Knight Aldrich, associate professor of psychiatry, University of Minnesota Medical School, Minneapolis, has been appointed chairman, department of psychiatry, University of Chicago School of Medicine. A native of Chicago, Dr. Aldrich served his internship at Cook County Hospital. For five years he was a psychiatrist with the U. S. Public Health Service. He joined the faculty of the University of Minnesota Medical School in 1947. He also has served as a consultant to the Veteran's Administration Hospital, Minneapolis, and to the Family and Children's Service of Minneapolis. He is the author of "Psychiatry for the Family Doctor," the Medical Book Guild's August selection.

MISSISSIPPI

Two Professors Appointed.—The University of Mississippi School of Medicine in Jackson announces the appointment of Dr. Robert D. Sloan, who has been on the staff at Johns Hopkins University School of Medicine, Baltimore, as professor of radiology and chairman of the department. Another Johns Hopkins staff member, Dr. Blair E. Batson, will become professor of pediatrics and chairman of that department in Mississippi's four-year school of medicine in the newly built University Medical Center.

NEW YORK

Academy of Medicine Meeting.—The monthly meeting of the Binghamton Academy of Medicine will be held Oct. 18, 8:45 p. m., at Binghamton City Hospital, Binghamton. Dr. G. W. H. Schepers, Saranac Lake, will speak on pneumonoconiosis.

Annual Meeting of Practitioners.—The seventh annual scientific assembly of the New York State Academy of General Practice will convene at the Hotel Statler, New York City, Oct. 17-20. The sessions will open with a welcoming address by Dr. Garra L. Lester, Chautauqua, president of the academy, and felicitations by Dr. Renato J. Azzari, New York City, president, Medical Society of the State of New York. A symposium on pediatric problems is scheduled for Monday afternoon (Dr. Philip M. Stimson, New York City, moderator); on adult malignancies for Tuesday afternoon (Dr. Alton Ochsner, New Orleans, moderator); and on geriatrics for Wednesday afternoon (Dr. Duane M. Carr, Memphis, Tenn., moderator). Dr. G. Lombard Kelly, president emeritus, Medical College of Georgia, Augusta, will open the scientific program at 9:30 a. m. Monday with "Sex Counsel by the General Practitioner." At 11 a. m. Tuesday Dr. Ochsner will discuss "Cancer of the Lung." The annual banquet Tuesday, 7 p. m., will be a benefit for the American-Korean Foundation. Dr. Howard A. Rusk, New York City, chairman, board of directors of the foundation, will be the speaker. A postconvention cruise to Nassau will leave New York City Oct. 21 and return Oct. 28. Reservations are not limited to academy members. For information, write to the convention chairman, Dr. John Hunter Fuchs, 8712—132nd St., Richmond Hill 18, N. Y.

New York City

Tumor Clinic Conference.—Dr. George C. Escher, assistant attending physician, Memorial Center for Cancer and Allied Diseases, will present "Management of Advanced Mammary Carcinoma" at the tumor clinic conference in the Women's Pavilion, Harlem Hospital, Oct. 19, 10:45 a. m.

First Alfred P. Sloan Lecture.—The Sloan-Kettering Institute for Cancer Research announces the first annual Alfred P. Sloan Jr. Lecture, "Cancer, A Crossroads of Biology," to be delivered by Julian S. Huxley, D.Sc., Oct. 19, 8:30 p. m., at Hunter College Playhouse, 68th Street between Lexington and Park avenues.

Conferences on Drug Addiction.—Drug addiction will be discussed in nine monthly conferences at the Bellevue Hospital School of Nursing under the sponsorship of Riverside Hospital and the Welfare and Health Council of New York City. The series will start Oct. 20 with a discussion of "The Adolescent Addict—The Impact on the Community." Other topics include: "Narcotics—Traffic and Control," "The Family of the Addict," "Problem of Drug Withdrawal," "Problems of Patient Management in an Institutional Environment," "Rehabilitation of the Addict," and "The Addict After Discharge from the Institution." Dr. Kenneth W. Chapman, Washington, D. C., chief, neuropsychiatry branch, Public Health Service Division of Hospitals, will be one of the speakers. Riverside Hospital, a division of the city's department of hospitals, specializes in the study and treatment of the use of habit-forming drugs.

NORTH CAROLINA

Dr. Hart Honored.—Dr. Deryl Hart, Duke University School of Medicine, Durham, has completed 25 years as chairman of the department of surgery. On Oct. 20 his former residents will celebrate his anniversary at a banquet, at which time his portrait will be presented to the university. Dr. Wilburt C. Davison, dean of the school since its foundation in 1930, will be the speaker.

OHIO

Pediatric Symposium.—"The First Year of Life" will be the subject of the postgraduate fall symposium, to be presented at Saint Luke's Hospital, Cleveland, Oct. 21-22, with the cosponsorship of the Ohio Academy of General Practice, which will allow 13 hours' credit. Guest speakers will be Dr. John P. Caffey of the Babies Hospital, New York, and Dr. Warren E. Wheeler of Ohio State University College of Medicine, Columbus. Other speakers will be from Babies and Childrens Hospital, the Cleveland Clinic, and St. Luke's Hospital, Cleveland.

OREGON

M and R Conference.—The M and R Research Conference will be held at the University of Oregon Medical School, Portland, Oct. 20-21, under the joint sponsorship of the pediatric departments of the University of Oregon and University of Washington medical schools and under the chairmanship of Dr. Robert A. Aldrich, associate professor of pediatrics at the former school. About 20 biochemists and clinicians from various parts of the United States will discuss problems relating to "Iron Metabolism and Function." The meeting is open to all physicians and others interested.

Pediatric Research Society Meeting.—The annual meeting of the Western Society for Pediatric Research will be held in the library of the University of Oregon Medical School, Portland, Oct. 19, beginning at 9 a. m. Dr. Robert A. Aldrich will preside. Over 60 teaching and research pediatricians who live west of the Mississippi compose the membership of this group. A social hour and banquet is scheduled in the evening at the Columbia Athletic Club. The session is open to all physicians interested in the specialty.

TENNESSEE

Symposium at Vanderbilt on Newer Vitamins.—A Symposium on the Role of Some of the Newer Vitamins in Human Metabolism and Nutrition, made possible by a grant from the National Vitamin Foundation, will be held Oct. 20-21 in the amphitheater of Vanderbilt University School of Medicine, 21st Avenue South, Nashville. At 9:15 a. m. Thursday, Chancellor Harvie Branscomb will deliver greetings, followed by "The History of Vitamin B_6" by Dr. Paul Gyorgy, Philadelphia, and "Vitamin B_6 Deficiency in the Rhesus Monkey with Particular Reference to the Occurrence of Arteriosclerotic Lesions" by Drs. James F. Rinehart and Louis Greenberg, San Francisco. Discussion by Gladys A. Emerson, Ph.D., Rahway, N. J., and Norman Olsen, Ph.D., Nashville, will follow. At 10:50 a. m. presentation of "Experimental Neuropathology of Vitamin B_6 Deficiency" by Drs. Maurice Victor and Raymond D. Adams, Boston, will precede a paper on pyridoxine deficiency and convulsions in infancy by Dr. David B. Coursin, Lancaster, Pa., to be followed by discussion by Dr. Charles D. May, Iowa City. After luncheon, 12:30 p. m., Earle W. McHenry, Ph.D., Toronto, Canada, will consider "Metabolic Effects of Pyridoxine in Vivo" and Dr. Maximilian Wachstein, Brooklyn, N. Y., "Evidence for Abnormal Vitamin B_6 Metabolism in Pregnancy and Various Disease States," with discussion by Dr. William J. McGanity of Nashville. The closing presentations, 3:15 p. m., include "Metabolism of Vitamin B_6 in Human Beings" by Dr. Richard W. Vilter, Cincinnati (discussion: Dr. Henry Sebrell, New York), and "Some Interrelationships of Vitamin B_6 and Vitamin E" by Paul L. Day, Ph.D., and James S. Dinning, Ph.D., Little Rock, Ark. The Friday session, 9-10:30 a. m., includes the following presentations:

Studies on Tocopherol in Infants, Harry H. Gordon, Baltimore (discussion: Dr. Paul Gyorgy, Philadelphia).
Tocopheryl Hydroquinone and Muscle Dystrophy, Philip L. Harris, Ph.D., and Karl E. Mason, Ph.D., Rochester, N. Y.
Effects of Limited Tocopherol Intake in Human Males, Max K. Horwitt, Ph.D., Cecil C. Harvey, Ph.D., G. D. Duncan, and William C. Wilson, Elgin, Ill. (discussion: Grace A. Goldsmith, New Orleans).
Pantothenic Acid Deficiency Induced in Human Adults, William B. Bean, Iowa City (discussion: Dr. Beverly T. Towery, Nashville, and Floyd S. Daft, Ph.D., Bethesda, Md.).

Information may be obtained from the Department of Biochemistry, Vanderbilt University, Nashville, or the National Vitamin Foundation, Inc., 15 E. 58th St., New York 22.

VIRGINIA

State Medical Meeting in Richmond.—The Medical Society of Virginia will hold its 108th meeting at the Hotel Jefferson, Richmond, Oct. 16-19. The presidential address will be delivered by Dr. Carrington Williams, Richmond, Monday, 8:30 p. m. At 3:10 p. m. that day Dr. Richard B. Cattell, Boston, will outline "Advances in Pancreatic Surgery." An obstetric and gynecologic symposium is scheduled for 9:15 a. m. Tuesday and a panel on cardiac surgery for 10:30 a. m. Dr. Robert A. Ross, Chapel Hill, N. C., has been invited to discuss "Omissions and Commissions in Maternal Mortality" Tuesday morning. Tuesday afternoon the guest speaker, Dr. John deJ. Pemberton, Rochester, Minn., will present "Surgical Management of Nodular Goiter." At the banquet Dr. James P. King, Radford, will be installed as president. On Wednesday morning, 9:15 a. m., a panel discussion of the evaluation of laboratory procedures and their values will be presented. At 9:35 a. m. Dr. Martillus H. Todd, Coral Gables, Fla., will report about "Experiences with Bleeding Gastric and Duodenal Ulcer." A symposium on convulsions will be presented at 10:45 a. m. Dr. Williams will preside at a medicolegal session on professional liability insurance, 2 p. m., at which the guest speakers will be Ernest C. Fisher Jr., Aetna Casualty and Surety Company, Richmond, who will discuss malpractice; Robert G. Butcher, attorney, whose subject will be actions for malpractice; and A. Scott Anderson, president of the Richmond Bar Association, who will present "The Doctor as a Witness and His Obligation to the Court."

WISCONSIN

Circuit Programs at Three Locations.—The State Medical Society of Wisconsin will present the following program at the Elks Club, Rice Lake, Oct. 18; Mead Hotel, Wisconsin Rapids, Oct. 19; and the Elks Club, Appleton, Oct. 20:

Treatment of Systemic Arterial Hypertension, James W. Culbertson, Iowa City.
Surgical Emergencies in Children, Kenneth E. Lemmer, Madison.
Abortions and Chronic Diseases Related to OB, William C. Keettel, Iowa City.
Poison Control, Franklin J. Mellencamp, Milwaukee.

Five hours of formal teaching credit will be allowed members of the American Academy of General Practice for each meeting. The cost, $6, includes dinner and a "coffee break" in the middle of the afternoon. Reservations may be made through the State Medical Society of Wisconsin, Box 1109, Madison.

GENERAL

Noise Abatement Symposium.—The sixth annual National Noise Abatement Symposium will be held Oct. 20-21 at Armour Research Foundation of Illinois Institute of Technology, Chicago. The topics to be discussed will be "Noise in Industry (Case Histories)"; "Impact Noises"; and "Novel Methods of Noise Reduction."

Meeting of Neuropsychiatric Association.—The 31st annual convention of the Central Neuropsychiatric Association will be held at the Broadmoor Hotel, Colorado Springs, Colo., Oct. 21-22, under the presidency of Dr. Benjamin Boshes, Chicago, who will deliver an address at 2 p. m. Friday. Twenty-three speakers have been invited to participate in the sessions. The banquet will be held at 6:30 p. m. Friday. A mountain barbecue party will be held Oct. 20 at 5 p. m. There will be a prebarbecue cocktail party (compliments of Smith, Kline & French Pharmaceutical Company). Bus transportation will leave from the entrance of the hotel.

American Academy of Neurological Surgery.—The 17th annual meeting of the American Academy of Neurological Surgery will be held at the Homestead, Hot Springs, Va., Oct. 27-29. Dr. David L. Reeves, Santa Barbara, Calif., will deliver the presidential address, "The Neurosurgeon," on Friday. The scientific session Thursday, beginning at 9:15 a. m., will include presentations of unusual cases: (1) Intracranial Lipomas, Dr. Homer S. Swanson, Atlanta, Ga.; (2) An Unusual Oligodendroglioma, Drs. John R. Green and Harry F. Steelman, Phoenix, Ariz.; and (3) Otorrhea as a Complication of Removal of an Acoustic Neurinoma, A. Earl Walker, Baltimore. The sessions will include the following single author presentations by invited speakers:

Traumatic Intracerebral Hematoma: Review of 16 Successfully Treated Cases, Robert L. McLaurin, Cincinnati.
Therapy in Amyotrophic Lateral Sclerosis, William S. Fields, Houston, Texas.
Pathology of Cervical Whip Lash Injuries, Ernest W. Mack, Reno, Nev.
Alleviation of Experimental Facial Neuralgia by Trauma to the Gasserian Ganglion, Robert B. King, St. Louis.

Prize for Medical Research.—The Joseph A. Capps Prize for Medical Research, founded by Dr. and Mrs. Edwin R. LeCount, is being offered by the Institute of Medicine of Chicago as an annual prize of $300 for the most meritorious investigation in medicine or in the specialties of medicine. The investigation may be also in the fundamental sciences, provided the work has a definite bearing on some medical problem. Competition for 1955 is open to graduates of Chicago medical schools who completed their internship or one year of laboratory work within a period of five years before Jan. 1, 1955, excluding their terms of service in the armed forces. Manuscripts must be submitted to the Secretary of the Institute of Medicine of Chicago, 86 E. Randolph St., Chicago 1, not later than Dec. 31, 1955. The manuscript of the prize paper, as submitted, will become the property of the Institute of Medicine of Chicago.

Correspondence School for Shut-In Children.—The Calvert School, Baltimore, an unendowed nonprofit institution that for almost 50 years has given an elementary school education to children who cannot attend regular schools, provides education by mail for home-bound children throughout the United States. Calvert's courses (from kindergarten through the ninth grade) are accredited by the state of Maryland. Children with heart conditions make up about 20% of Calvert's shut-in students; poliomyelitis patients about 15%; chronic asthma sufferers about 10%; and those with eye, ear, and speech defects about 15%. Muscular dystrophy, cerebral palsy, diabetes, and hemophilia are among the other causative factors affecting Calvert's home-bound students. Although its home-study courses are laid out for 160 "school days," Calvert suits the speed of learning to the capacity of the shut-in child. Parents receive all necessary directions for supervising the home study.

Nutrition Grants.—The National Vitamin Foundation, Inc., announces 16 new grants to American universities and medical centers, totaling $70,766. The foundation gives grants-in-aid for research semiannually throughout the United States and abroad. Recipients of the new grants include the following physicians: Albert B. Eisenstein, St. Louis, for studies of the relationship of pantothenic acid to adrenocortical hormone secretion; George J. Gabuzda, Cleveland, for studies of the metabolism and interrelationship of folic acid, citrovorum factor, and ascorbic acid; Irving P. Graef, New York, for studies of the effect of pantothenic acid deficiency in various disease states; G. Watson James III, Richmond, Va., for studies of vitamin B_{12} growth activity of P. stipitata in human leukemia; and A. Leonard Luhby, New York, for studies of the evaluation of urinary formamido-L-glutamic acid excretion as a clinical test for folic acid undernutrition.

Meeting of Dietetic Association.—The 38th annual meeting of the American Dietetic Association will be held in St. Louis Oct. 18-21. Physicians participating will include:

Carl V. Moore, St. Louis, Absorption of Iron from Enriched Bread and Other Foods.
Morris J. Fogelman, Dallas, Texas, Food Intake and Hypnosis in Surgical Diseases.
Jeffrey H. Fryer, Ithaca, N. Y., Advances in Nutrition.
James M. Hundley, Bethesda, Md., Obesity—A U. S. Problem.
Grace A. Goldsmith, New Orleans, Niacin Deficiency in Man.
Josef Warkany, Cincinnati, Endemic Cretinism in Europe.

The Maternal and Infant Health Session will be opened by Lois Murphy, Ph.D., consultant of the department of child psychiatry of the Menninger Foundation, Topeka, Kan., who will discuss "Psychological Aspects of Infant and Child Feeding." "Newer Findings on Amino Acids" will be the topic of Conrad A. Elvehjem, Ph.D., dean of the Graduate School of the University of Wisconsin, Madison, during the session on current nutrition research.

Cardiovascular Disease.—According to the American Heart Association, deaths from diseases of the heart and blood vessels decreased slightly in the United States during 1954, although these diseases continue to outrank all others as America's leading cause of death and were responsible for 52.3% of all deaths in 1954. Figures provided by the National Office of Vital Statistics show that deaths from disease of the cardiovascular system dropped in 1954 to 773,980 (480.2 per 100,000 population) from a high of 794,120 (501.6 per 100,000) reached in 1953. This drop paralleled a drop in the U. S. death totals from 1,518,600 in 1953 to 1,481,000 last year. Improvement in the cardiovascular death rate is attributed by the association to a sharp drop in the incidence of influenza and pneumonia last year as compared with 1953, the first two months of which were marked by a severe and widespread influenza outbreak. No significant change occurred in 1954 in the number or rate of deaths from arteriosclerotic heart disease, including coronary disease. In the under 65 age group in 1954, cardiovascular diseases took 232,750 lives, or more than double the number claimed in this age group by cancer, second leading cause of death.

Manual for Handicapped Swimmers.—The American Red Cross has published an instructor's manual, "Swimming for the Handicapped," based on experience in a program started in 1945, when the Red Cross cooperated with the armed forces to provide swimming instruction for handicapped veterans and servicemen. Prepared with the assistance of physicians, physical therapists, physical education experts, and water safety instructors, the manual includes information that outlines the general physiological and psychological values of swimming, lists the facilities and equipment needed, and provides explanatory information that will help instructors better understand and teach the handicapped. The detailed section on specific programs for various conditions covers temporary orthopedic disabilities, permanent disabilities due to loss of body parts, paralysis due to injury or disease, permanent disabilities due to heart condition, permanent disabilities due to sight and hearing difficulties, and disabilities due to mental illness. Information concerning the program and the manual can be obtained from local Red Cross chapters or from area offices located in Alexandria, Va.; Atlanta, Ga.; St. Louis; and San Francisco.

National Safety Congress.—The 43rd National Safety Congress and Exposition will convene in Chicago Oct. 17-21 at the Conrad Hilton Hotel. A symposium, "Effective Utilization of the Disabled Employee in Industry," has been scheduled for Tuesday morning; a program, "Atomic Energy Is in Industry," for Wednesday morning; and a symposium, "Public Health Aspects of Home Safety," for 2 p. m. At 12:15 p. m. Wednesday in the Williford Room "B" the American Medical Association, through its Committee on Pesticides and Committee on Toxicology, will be awarded a national home safety Certificate of Commendation for exceptional public service in the prevention of home accidents during the year 1954-1955. Presentations by physicians will include "Medical Services in a Small Plant" by Dr. Kozme F. Kapov, Chicago, Monday, 2:30 p. m., at the Congress Hotel; "Back Injuries" by Dr. Matt A. Connell, Picher, Okla., Monday, 3:30 p. m., Congress Hotel; "Radiation in Industry—Nursing and Health Aspects" by Dr. Eugene L. Walsh, Chicago, Wednesday, 10:45 a. m., Conrad Hilton Hotel; "Health Problems in the Printing Plant" by Dr. Gradie R. Rowntree, Louisville, Ky., Monday, 3:20 p. m., Conrad Hilton Hotel; "Eyes—Facts and Fallacies" by Dr. Hedwig S. Kuhn, Hammond, Ind., Thursday, 2 p. m., Conrad Hilton Hotel; and "Eye Safety in the Halls of Ivy" by Dr. Kuhn, Thursday, 10:25 a. m., Morrison Hotel.

Medicodental Symposium.—The Fourth Naval District will present the sixth annual Military Medico-Dental Symposium for all armed forces of the United States Oct. 17-22 at the U. S. Naval Hospital, Pattison Avenue, Philadelphia. Members of the nursing professions, students, interns, residents, and hospital administrators also are cordially invited. The first general session will hear discussed "The Expanding Horizons of Military Medicine" by Dr. Elmer Hess, Erie, Pa., President, American Medical Association, and Major Gen. Dan C. Ogle, surgeon general, U. S. A. F. Dr. Joseph Stokes Jr., Philadelphia, will moderate a discussion on virus diseases Tuesday, during which "Infectious Hepatitis" will be presented by Dr. W. Paul Havens Jr.; "Poliomyelitis" by Dr. Lewis L. Coriell; and "Diagnosis of Viral Diseases" by Dr. Klaus Hummeler, all of Philadelphia. A clinicopathological conference will be presented Wednesday by Dr. Lorenz E. Zimmerman, Washington, D. C., and Francis H. Adler, Philadelphia. The second general session, Thursday, will hear a panel discussion on civil defense conducted by Commander Paul B. Hartenstein, U. S. N. R. (Ret.), executive director, Philadelphia Civil Defense Council. The joint session on medicine and psychiatry Friday will hear a discussion on chronic alcoholism, drug addiction, and suicide, moderated by Rear Adm. Richard A. Kern, M. C., U. S. N. R. (Ret.), professor of medicine, Temple University School of Medicine, Philadelphia. The section on urology will have a discussion Friday on renal calculi. The Navy-Penn football game will be held at Franklin Field, University of Pennsylvania, Saturday (tickets, $4).

Meeting of Life Insurance Medical Directors.—The Association of Life Insurance Medical Directors of America will hold its 64th annual meeting at the Hotel Statler, New York, Oct. 19-21, under the presidency of Dr. Richard L. Willis, New York. The half-day session Wednesday will consist of a business meeting, followed by "Mortality Studies of Isolated Electrocardiographic T-Wave Changes" by Dr. Charles E. Kiessling, Newark, N. J., Dr. Royal S. Schaaf, Newark, N. J., and Annie Mary Lyle, of the Prudential Insurance Company of America, and "The Development and Treatment of Hypertensive Disease" by Dr. Edgar A. Hines Jr., Rochester, Minn. Thursday morning "Substandard Accident and Sickness Insurance" will be presented by Dr. William H. Scoins, Fort Wayne, Ind., of the Lincoln National Life Insurance Company; "Clinical Evaluation of the Commoner Hepatic Disorders" by Dr. Franklin M. Hanger, Columbia University College of Physicians and Surgeons, New York; and "Coronary Artery Disease" by Dr. Samuel A. Levine, Harvard Medical School, Boston. In the afternoon "Chemical Treatment of Cancer" will be considered by Dr. Joseph H. Burchenal, Cornell University Medical College, New York, and "Prognosis in Peptic Ulcer Disease" by Dr. Henry L. Bockus, University of Pennsylvania Graduate School of Medicine, Philadelphia. The banquet will be held at 6 p. m. The following program is scheduled for Friday morning:

The Altered Prognosis in Diabetes Mellitus, Herbert Pollack, New York.
Present Concepts of Arteriosclerosis, William Dock, Brooklyn, N. Y.
Discussion of the Recent Impairment Study of the Society of Actuaries, Mr. Andrew C. Webster, New York.

Meeting of Heart Association.—The 31st annual meeting of the American Heart Association will convene in New Orleans Oct. 22-28 under the presidency of Dr. E. Cowles Andrus, Baltimore. The scientific sessions and the special community service and rheumatic fever programs will be held in the Municipal Auditorium, and other events, including the meetings of the assembly and of the staff conference of heart associations, will be at the Jung Hotel. This year's scientific sessions will be the first ever held independently of any major medical gathering. A panel on aneurysms of the aorta will be presented Saturday morning. In the afternoon Dr. George A. Perera, New York, will deliver the Lewis A. Conner Memorial Lecture, "Digital Rheoplethysmography." The George E. Brown Memorial Lecture on primary hypertension will be given Sunday morning by Dr. George E. Burch, New Orleans, as will the program of the Council on Community Service and Education on body weight and heart disease. A panel on electrolyte disturbances in cardiac and renal diseases and a program on heart disease and rehabilitation are scheduled for Sunday afternoon. Monday morning will be devoted to a joint program of the councils on rheumatic fever and congenital heart disease and on community service and education, which will deal with prevention of rheumatic fever and the cardiac child in the schools. In the afternoon a panel, "The Role of Hemodynamic Data in Determining Operability," will be presented. Among the social events will be the annual dinner dance of the association, Sunday evening, at which the presidential address will be delivered and the 1955 Gold Heart and Howard Blakeslee awards will be made. An eight day medical tour to Mexico has been arranged, starting from New Orleans on Thursday. Included will be a series of special cardiological programs in Mexico City, arranged by the National Institute of Cardiology.

FOREIGN

Fluorination Abroad.—Cairo, Egypt, with a population of more than 2 million, has announced plans to fluorinate its public water supply. Other countries, in addition to the United States, that have fluorination of some municipal water supplies include: Brazil, Canada, Chile, Colombia, Germany, Holland, Japan, New Zealand, Sweden, and Switzerland.

Prize for Trachoma Essay.—For the fourth time, the Chibret Gold medal for works on the pathology and treatment of trachoma will be awarded during the general assembly of the Anti-Trachoma League, which will be held in Paris, France, in 1956. The paper may deal with any of the following aspects: clinical, social, preventive, medical therapeutics, or surgical therapeutics. It must be written in French, have a maximum of 30 typewritten pages, be presented in triplicate, accompanied by an abstract of two pages in French and so far as possible in English, Italian, and Spanish, and be submitted before Jan. 1, 1956, to the general secretary of the league, Dr. Jean Sedan, 94, rue Silvabelle, Marseilles, Telephone, Dr 37-55.

International Colloquium on Chlorpromazine.—An International Colloquium on Chlorpromazine and the Neuroleptic Agents in Psychotherapy will be held at the Clinique des Maladies Mentales et de l'Encephale, Hôpital Sainte-Anne, Paris, France, Oct. 20-22. The aim of the meeting is to bring together not only those who, in their various countries, have made a special study of these new treatments but also all specialists who are particularly interested. Specialists from Argentina, Austria, Belgium, Brazil, Canada, Colombia, Cuba, England, Egypt, Germany, Greece, Holland, Italy, Lebanon, Luxemburg, Mexico, Peru, Portugal, Spain, Sweden, Switzerland, Turkey, the United States, and Venezuela, as well as the French Union, are expected to attend. The program includes: methods of administration; posology and length of treatments; indications and contraindications of the different methods; uses in connection with other forms of psychiatric treatment; accidents and caution; chlorpromazine and reserpine; neurophysiological and psychophysiological effects; and a hypothesis concerning modes of action. Information may be obtained from Dr. Pierre Deniker, Clinique de la Faculte, 1, rue Cabanis, Paris 14eme.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1955 Clinical Meeting, Boston, Nov. 29-Dec. 2.

1956 Annual Meeting, Chicago, June 11-15.

1956 Clinical Meeting, Seattle, Nov. 27-30.

1957 Annual Meeting, New York, June 3-7.

National Medical Public Relations Conference, Hotel Statler, Boston, Nov. 28. Mr. Leo F. Brown, 535 N. Dearborn St., Chicago 10, Director.

American Academy of Dermatology and Syphilology, Palmer House, Chicago, Dec. 3-8. Dr. James R. Webster, 55 East Washington St., Chicago 2, Secretary.

American Academy of Neurological Surgery, The Homestead, Hot Springs, Va., Oct. 27-29. Dr. Eben Alexander Jr., Bowman Gray School of Medicine, Winston-Salem, N. C., Secretary.

American Academy of Obstetrics and Gynecology, Conrad Hilton Hotel, Chicago, Dec. 13. Dr. C. Paul Hodgkinson, 116 South Michigan Blvd., Chicago, Secretary.

American Association of Blood Banks, Palmer House, Chicago, Nov. 19-21. Miss Marjorie Saunders, 3707 Gaston Ave., Dallas 10, Texas, Secretary.

American Association of Medical Clinics, Curtis Hotel, Minneapolis, Nov. 4-6. Dr. Edwin P. Jordan, Box 58, Charlottesville, Va., Executive Director.

American Association for the Surgery of Trauma, Drake Hotel, Chicago, Oct. 27-29. Dr. James K. Stack, 700 N. Michigan Blvd., Chicago 11, Secretary.

American Clinical and Climatological Association, The Homestead, Hot Springs, Va., Oct. 31-Nov. 2. Dr. M. N. Fulton, 124 Waterman St., Providence 6, R. I., Secretary.

American College of Anesthesiologists, Hotel Statler, Boston, Nov 4-5. Mr. John H. Hunt, 188 West Randolph St., Chicago 1, Executive Secretary.

American College of Cardiology Interim Meeting, Hotel Claridge, Memphis, Tenn., Nov. 10-12. Dr. Philip Reichert, Empire State Bldg., New York 1, Secretary.

American College of Gastroenterology, Hotel Shoreland, Chicago, Oct. 24-26. Dr. Joseph Shaiken, 33 West 60th St., New York 23, Secretary

American College of Surgeons, Conrad-Hilton Hotel, Chicago, Oct. 31-Nov. 4. Dr. Michael L. Mason, 40 East Erie St., Chicago 11, Secretary.

American Dental Association, San Francisco, Oct. 17-20. Dr. Harold Hillenbrand, 222 East Superior St., Chicago 11, General Secretary.

American Heart Association, Yung Hotel, New Orleans, Oct. 22-26. Mr. Irving Hexter, 44 East 23d St., New York 10, Secretary.

American Medical Women's Association, Board Meeting, Netherlands-Plaza Hotel, Cincinnati, Nov. 11-13. Miss Lillian T. Majally, 1790 Broadway, New York 19, Executive Secretary.

American Public Health Association, Muehlebach Hotel and Municipal Auditorium, Kansas City, Mo., Nov. 14-18. Dr. Reginald M. Atwater, 1790 Broadway, New York 19, Executive Secretary.

American School Health Association, Hotel President, Kansas City, Mo., Nov. 14-18. Dr. A. O. DeWeese, 515 East Main St., Kent, Ohio, Secretary.

American Society of Anesthesiologists, Hotel Statler, Boston, Oct. 29-Nov. 3. Dr. J Earl Remlinger Jr., Room 1101, 188 W. Randolph St., Chicago 1, Secretary.

American Society for the Study of Arteriosclerosis, Hotel Sheraton, Chicago, Nov. 6-7. Dr. O. J. Pollak, P.O. Box 228, Dover, Del., Secretary.

American Society of Tropical Medicine and Hygiene, Somerset Hotel, Boston, Nov. 2-5. Dr. John E. Larsh Jr., Dept. of Parasitology, School of Public Health, Chapel Hill, N. C., Secretary.

Association of American Medical Colleges, New Ocean House, Swampscott, Mass., Oct. 24-26. Dr. Dean F. Smiley, 185 N. Wabash Ave., Chicago 1, Secretary.

Association of Life Insurance Medical Directors of America, Hotel Statler, New York, Oct. 19-21. Dr. Henry B. Kirkland, P. O. Box 594, Newark, N. J., Secretary.

Association of Military Surgeons of the U. S., Hotel Statler, Washington, D. C., Nov. 7-9. Colonel Robert E. Bitner, 1726 I St. N.W., Washington 6, D. C., Secretary.

Association for Research in Nervous and Mental Diseases, Hotel Roosevelt, New York, Dec. 9-10. Dr. Clarence C. Hare, 710 West 168th St., New York 32, Secretary.

Association of State and Territorial Health Officers, Hotel Washington, Washington, D. C., Nov. 6-12. Dr. Franklin D. Yoder, State Board of Health, Cheyenne, Wyo., Secretary.

Central Neuropsychiatric Association, The Broadmoor, Colorado Springs, Colo., Oct. 20-22. Dr. Hamilton Ford, 112 North Boulevard, Galveston, Tex., Secretary.

Central Society for Clinical Research, Drake Hotel, Chicago, Nov. 4-5. Dr. Robert H. Ebert, 950 East 59th St., Chicago 37, Secretary.

Congress of Neurological Surgeons, Hotel Statler, Los Angeles, Oct. 27-29. Dr. Philip D. Gordy, 1007 Delaware Ave., Wilmington, Del., Secretary.

Delaware, Medical Society of, Delaware Academy of Medicine, Wilmington, Oct. 17-18. Dr. Norman L. Cannon, 621 Delaware Ave., Wilmington, Secretary.

Eastern Section, American Federation for Clinical Research, Hotel Warwick and College of Physician's Building, Philadelphia, Dec. 2-3. Dr. Charles R. Shuman, Temple Univ. Hospital, Broad and Ontario Sts., Philadelphia 40, Chairman.

Gerontological Society, Sheraton-Belvedere Hotel, Baltimore, Oct. 27-29. Dr. Nathan W. Shock, Baltimore City Hospitals, Baltimore 24, Secretary.

Gulf Coast Clinical Society, Pensacola, Fla., Oct. 27-28. Dr. Barkley Beidleman, 1750 N. Palafox St., Pensacola, Fla., Secretary.

Indiana State Medical Association, French Lick Springs Hotel, French Lick, Oct. 16-19. Mr. James A. Waggener, 23 East Ohio St., Indianapolis 4, Executive Secretary.

Inter-Society Cytology Council, Statler Hotel, Cleveland, Nov. 11-12. Dr. Paul F. Fletcher, 634 N. Grand Blvd., St. Louis 3, Secretary.

Interstate Post Graduate Medical Association of North America, Municipal Auditorium, Milwaukee, Nov. 14-17. Mr. Roy T. Ragatz, 207 Gay Bldg., Madison 3, Wis., Executive Director.

Medical Society Executives Conference, Parker House, Boston, Nov. 27. Mr. H. Martin Baker, 1102 South Hillside, Witchita 17, Kansas, Secretary.

Midwestern Section of American Federation for Clinical Research, Thorne Hall, Northwestern University, and Drake Hotel, Chicago, Nov. 3. Dr. Robert J. Glaser, Barnes Hospital, St. Louis 10, Secretary.

National Association for Mental Health, Indianapolis, Nov. 4-6. Mr. Robert M. Heininger, 1790 Broadway, New York 19, Director.

New England Health Education Association, Boston, Dec. 2. Miss Wyntha Tompkins, Middlesex Health Association, Essex, Mass., Secretary.

Oklahoma City Clinical Society Conference, Oklahoma City, Oct. 24-27. Dr. Charles E. Leonard, 512 Medical Arts Bldg., Oklahoma City 2, Secretary.

Omaha Mid-West *Clinical Society*, Hotel Paxton, Omaha, Oct. 24-27. Mrs. Anne K. Ramsey, 1031 Medical Arts Bldg., Omaha 2, Executive Secretary.

Puerto Rico Medical Association, Santurce, Dec. 7-11. Dr. Luis R. Guzman-Lopez, Box 9111, Santurce, Secretary.

Regional Meetings, American College of Physicians:
Louisville, Ky., Nov. 5. Dr. Sam A. Overstreet, 332 West Broadway, Louisville, Ky., Governor.
Newark, N. J., Nov. 9. Dr. Edward C. Klein Jr., 6 S. Kingsman Rd., *South Orange, N. J., Governor.*
Detroit, Dec. 3. Dr. H. Marvin Pollard, 1313 East Ann St., Ann Arbor, Mich., Governor.
Hot Springs, Ark., Dec. 3. Dr. A. A. Blair, 100 S. 14th St., Ft. Smith, Ark., Governor.
Winston-Salem, N. C., Dec. 8. Dr. Elbert Persons, Duke Hospital, Durham, N. C., Governor.

Society of Clinical Surgery, Hotel Roosevelt, New Orleans, Nov. 11-12. Dr. Frank F. Allbritten Jr., University of Kansas Medical Center, Kansas City, Mo., Secretary.

Southern Medical Association, *Shamrock Hotel, Houston, Texas, Nov. 14-17. Mr. V. O. Foster, 1020 Empire Bldg., Birmingham 3, Ala.,* Secretary-Manager.

Southern Society of Cancer Cytology, Houston, Texas, Nov. 14-17. Dr. J. Ernest Ayre, 1155 N.W. 14th St., Miami, Fla., Secretary.

Southern Surgical Association, The Homestead, Hot Springs, Va., Dec. 6-8. Dr. George G. Finney, 2947 St. Paul St., Baltimore 18, Secretary.

Southwestern Medical Association, Westward Ho Hotel, Phoenix, Ariz., Nov. 16-18. Dr. Celso C. Stapp, 800 Montana St., El Paso, Texas, Secretary.

State Medical Journal Conference, Chicago, Nov. 7-8. Mr. Alfred J. Jackson, 535 N. Dearborn St., Chicago 10, Director.

The Constantinian Society, Sheraton-Park Hotel, Washington, D. C., Oct. 26-29. Dr. C. F. Shook, P. O. Box 1035-36, Toledo 1, Ohio, Secretary.

Virginia, Medical Society of, Hotel Jefferson, Richmond, Oct. 16-19. Mr. Robert I. Howard, 105 West Franklin St., Richmond, Executive Secretary.

Western Orthopedic Association, The Reef, Honolulu, Hawaii, Nov. 7-10. Dr. Ivar J. Larsen, 1133 Punchbowl, Honolulu 13, Hawaii, Secretary.

Western Society of Electro-Encephalography, Westward Ho Hotel, Phoenix, Ariz., Nov. 10-12. Dr. Sylvester N. Berens, 902 Boren Ave., Seattle, Secretary.

Western Surgical Association, Olympic Hotel, Seattle, Dec. 1-3. Dr. John T. Reynolds, 612 N. Michigan Blvd., Chicago 11, Secretary.

FOREIGN AND INTERNATIONAL

Conference of International Union for Health Education of the Public, Rome, Italy, Apr. 27-May 5, 1956. Mr. Lucien Viborel, 92 rue St. Denis, Paris 1er, France, Secretary-General.

Congress of International Association of Limnology, Helsinki, Finland, July 26-Aug. 7, 1956. For information address: Dr. H. Luther, Snellmansgatan 16 C 36, Helsinki, Finland.

Congress of International Association of Logopedics and Phoniatrics, Barcelona, Spain, Sept. 3-7, 1956. Dr. J. Perello, Provenza 319, Barcelona 9, Spain, Secretary-General.

Congress of International Society of Hematology, Hotel Statler, Boston, Mass., U.S.A., Sept. 3-8, 1956. Dr. W. C. Moloney, 39 Bay State Road, Boston, Mass., U.S.A., Secretary.

Congress of International Society for Research on Anesthesia, Miami Beach, Fla., U.S.A., Mar. 12-15, 1956. For information write: Dr. R. J. Whitacre, 13951 Terrace Road, Cleveland 12, Ohio, U. S. A.

Congress of Latin Society of Ophthalmology, Madrid, Spain, April 24-28, 1956. For information address: Dr. Costi, Montalban 3, Madrid, Spain.

European Congress of Allergology, Florence, Italy, May 1956. Prof. Umberto Serafini, Largo della Gancia 5, Rome, Italy, Secretary-General.

European Congress of Cardiology, Stockholm, Sweden, Sept. 10-12, 1956. Dr. Karl Erik Grewin, Sodersjukhuset, Stockholm, Sweden, General Secretary.

European Symposium on Vitamin B_{12}, Hamburg, Germany, May 1956. For information write: Doz. Dr. H. Bauer, Nervenklinik. Hamburg-Eppendorf, Germany.

International Academy of Pathology, Cincinnati, Ohio, U. S. A., *April 24-25, 1956. Dr. F. K. Mostofi, Armed Forces Institute of* Pathology, Washington 25, D. C., U. S. A., Secretary.

International Colloquium on Chlorpromazine and Neuroleptic Agents in Psycotherapy, Ste Anne Clinic of Mental Diseases, Paris, France, Oct. 20-22. Prof. Jean Delay, College of Medicine of Paris, 1, rue Cabanio, Paris 14e, France, Chairman.

International Congress Against Alcoholism, Istanbul, Turkey, Sept. 10-15, 1956. For information address: International contre l'Alcoolisme, Case Gare 49, Lausanne, Switzerland.

International Congress of Allergology, Rio de Janeiro, Brazil, S. A., Nov. 6-13. Dr. Bernard N. Halpern, 197 boulevard St. Germain, Paris 7^{e}, France, Secretary General.

International Congress of Anthropological and Ethnological Sciences, Philadelphia, Pa., U. S. A., Sept. 2-9, 1956. Dr. William N. Fenton, National Research Council, Division of Anthropology and Psychology, 2101 Constitution Avenue, Washington 25, D. C., U. S. A., Secretary-General.

International Congress on Diseases of the Chest, Cologne, Germany, Aug. 19-23, 1956. Mr. Murray Kornfeld, 112 East Chestnut St., Chicago 11, Illinois, U. S. A., Executive Director.

International Congress of Entomology, Montreal, Canada, Aug. 17-25, 1956. Mr. J. A. Downes, Science Service Bldg., Carling Ave., Ottawa, Ont., Canada, Secretary.

International Congress of Gastroenterology, London, England, July 18-21, 1956. Mr. Hermon Taylor, London Hospital, White Chapel, London E.1, England, Honorable Secretary.

International Congress for the History of Science, Florence and Milan, Italy, Sept. 3-10, 1956. Dr. M. L. Bonelli, Instituto di Ottica, Arcetri, Florence, Italy, Secretary-General.

International Congress of Hydatid Disease, Athens, *Greece, Sept.* 14-18, 1956. Prof. B. Kourias, Croix-Rouge Hellenique, 1 rue Mackenzie King, *Athens, Greece, Secretary-General.*

International Congress of Internal Medicine, Madrid, Spain, Sept. 19-23, 1956. Dr. J. C. De Oya and Dr. J. Gimena, Hostaleza No. 90, Madrid, *Spain, Secretaries.*

International Congress of International College of Surgeons, Palmer House, *Chicago,* Illinois, U. S. A., *Sept. 9-13, 1956.* Dr. Max Thorek, 1516 Lake *Shore Drive, Chicago,* Illinois, U. S. A., *Secretary-General.*

International Congress of International Society of Bronchoesophagology, Buenos Aires, Argentina, S. A., Oct. 28-29. Dr. Juan Carlos Arauz, Cangallo 4015, Buenos Aires, Argentina, S. A., Secretary General.

International Congress of Neo-Hippocratic Medicine, Montecatini, Terme, Italy, May 20-22, 1956. Dr. Valente, 41 Avenue Verdi, Montecatini Terme, Italy, Secretary-General.

International Congress of Paediatrics, Copenhagen, Denmark, July 22-27, 1956. Professor P. Plum, Rigshospitalet, Copenhagen, Denmark, President.

International Congress of Physical Medicine, Copenhagen, Denmark, August 20-24, 1956. Dr. B. Strandberg, Kobenhavns amts sygehus i Gentofte, Dept. of Rheumatology and Physical Medicine, Hellerup, Denmark, Honorable Secretary.

International Congress of Physiopathology of Animal Reproduction and Artificial Insemination, Cambridge, England, June 25-29, 1956. For information address: Dr. Joseph Edwards, Production Division, Milk Marketing Board, Thames Ditton, Surrey, England.

International Congress of Radiology, Mexico, D. F., Mexico, July 22-28, 1956. Dr. Jose Noriega, Tepic 126 (2e piso), Mexico, D. F. 7, Mexico, Secretary General.

International Congress of World Confederation for Physical Therapy, New York, New York, U. S. A., June 17-23, 1956. For information address: Miss Mildred Elson, American Physical Therapy Association, 1790 Broadway, New York 19, New York, U. S. A.

International General Medical Congress, University of Rosario Medical College, Rosario, Argentina, S. A., Nov. 7-12. Dean Jose Imhoff, Santa Fé 3100, Rosario, Argentina, S. A., Chairman.

International Genetics Symposium, Tokyo and Kyoto, Japan, Sept. 6-12, 1956. For information address: Secretary, International Genetics Symposium, Science Council of Japan, Ueno Park, Tokyo, Japan.

International Physiological Congress, Brussels, Belgium, July 29-Aug. 5, 1956. For information address: Prof. J. Reuse, Faculte de Medicine et de Pharmacie, 115 Boulevard de Waterloo, Brussels, Belgium.

International Professional Union of Gynecologists and Obstetricians, Madrid, Spain, Sept. 28-29, 1956. Dr. Jacques Courtois, 1 rue Racine, St-Germain-en-Laye (S and O), France, Permanent International Secretary-General.

Latin American Congress of Pathology, Mexico, D. F., Mexico, Dec. 11-17. For information address: Laboratorio de Anatomia Patologica, Instituto N. de Cardiologia, Avenida Cuauhtemoc 300, Mexico 7, D. F., Mexico.

North Queensland Medical Conference, Cairns, North Queensland, Australia, June 25-30, 1956. Dr. W. R. Horsfall, P.O Box 672, Cairns, N.Q., Australia, Secretary.

Pan American Congress of Gastroenterology, Havana, Cuba, Jan. 20-27, 1956. For information address: Dr. Norberto M. Stapler, 1267 J. E. Uriburu, Buenos Aires, Argentine, S. A.

Pan American Congress of International College of Surgeons, Mendoza City, Argentina, S. A., Oct. 22-26. For information address: Secretary, Caseros Av. 2154, Buenos Aires, Argentina, S. A.

Pan American Congress of Ophthalmology, Santiago, Chile, S. A., Jan. 9-14, 1956. Dr. Rene Contardo, Huerfanos 930, Of. 74, Santiago, Chile, Secretary General.

Pan American Congress of Otorhinolaryngology and Bronchoesophagology, San Juan, Puerto Rico, March 8-12, 1956. Dr. C. E. Munoz MacCormick, Apartado 9111, Santurce, Puerto Rico, Secretary General.

Pan American Medical Social Convention, Bogota, Colombia, S. A., Oct. 15-22. Dr. Leopoldo E. Araujo, Avenida de los Presidentes Num. 506, Apartado 2589, La Habana, Cuba, Secretary.

Pan American Medical Women's Alliance, Santiago, Chile, March 6-13, 1956. For information address: Dr. Eva Cutright, 458 Beall Ave., Wooster, Ohio, U. S. A.

Venezuelan Congress of Medical Sciences, Caracas, Venezuela, S. A., Nov. 18-26. Dr. A. L. Briceno Rossi, Apartado 4412, Ofic. del Este, Caracas, Venezuela, S. A., Secretary General.

World Congress on Fertility and Sterility, Naples, Italy, May 18-26, 1956. For information address: Prof. G. Tesauro, S. Andrea della Dame, 19, Naples, Italy.

EXAMINATIONS AND LICENSURE

EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology: *Oral.* New York City, Oct. 23-27. *Written.* Various locations in United States and Canada, July 20, 1956. Final date for filing application is Jan. 20. Sec., Dr. Curtiss B. Hickcox, 80 Seymour St., Hartford 15.

American board of Internal Medicine: *Oral.* Chicago, Nov. 30-Dec. 1. *Subspecialties. Cardiovascular Disease.* Chicago, Nov. 30. The closing date for acceptance of application for gastroenterology was Feb. 1, and for cardiovascular disease the closing date was June 1. Exec. Sec., Dr. William A. Werrell, 1 West Main St., Madison 3, Wis.

American Board of Neurological Surgery: *Oral.* New Haven, November. Oral examinations given in Spring and Fall. Final date for filing application for the Spring examination was October 1; for the Fall examination April 1. Sec., Dr. Leonard T. Furlow, Washington University School of Medicine, St. Louis 10.

American Board of Obstetrics and Gynecology: *Written Examination and submission of Case Reports. Part I.* Various locations in United States and Canada, and military centers outside of the Continental United States, Feb. 3, 1956. Final date for filing application was Oct. 1. *Oral and Pathological Examinations. Part II.* Chicago, May 11-20, 1956. Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

American Board of Ophthalmology: Written. January 24-26, 1956. *Practical Examination.* San Francisco, June 18-21, St. Louis, Oct. 20-25. Applications for 1957 written examination must be filed before July 1, 1956. Sec., Dr. Merrill J. King, Box 236, Cape Cottage Branch, Portland 9, Maine.

American Board of Orthopaedic Surgery: *Oral.* Jan. 26-27. Final date for filing application was Aug. 15. *Part I. Oral and written.* Various centers, April 1956. Final date for filing application is Nov. 30. Sec., Dr. Harold A. Sofield, 116 South Michigan Ave., Chicago 3.

American Board of Pediatrics: *Oral.* Washington, D. C., Dec. 2-4. Admin. Sec., Mrs. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

American Board of Physical Medicine and Rehabilitation. *Parts I and II.* Chicago, June 16-17. Sec., Dr. Earl C. Elkins, 200 First St., S. W., Rochester, Minn.

American Board of Preventive Medicine: *Certification in Public Health.* Kansas City, Mo., Nov. 10-12. Sec.-Treas., Dr. Ernest L. Stebbins, 615 N. Wolfe St., Baltimore 5.

American Board of Psychiatry and Neurology: San Francisco, Oct. 17-18; New York City, December, Philadelphia, April 16-18, 1956. Sec., Dr. David A. Boyd, 102-110 Second Ave. S.W., Rochester, Minn.

American Board of Radiology: Chicago, Dec. 4. Final date for filing applications for the fall examination was July 1. Candidates who will complete their training by Dec. 31 will be eligible to appear for this examination. Sec., Dr. B. R. Kirklin, Kahler Hotel Bldg., Rochester, Minn.

American Board of Surgery: *Part I.* Centers throughout the United States, in Europe and in the Far East, Oct. 26 and March 28. Closing date for the October examination was July 1 and for the March examination is December 1. *Part II.* Chicago, Oct. 27-28; New York City, Nov. 14-15; St. Louis, Dec. 12-13; New Orleans, Jan. 16-17; Los Angeles, Feb. 13-14; San Francisco, Feb. 16-17; Durham, Mar. 12-13; Boston, May 14-15 and Philadelphia, June 4-5. Sec., Dr. John B. Flick, 255 S. Fifteenth St., Philadelphia 2.

MAGAZINE–TELEVISION REPORT

The following list of current medical articles in mass-circulation magazines and forthcoming network television programs on medical subjects is published each week only for the information of readers of The Journal. *Unless specifically stated, the American Medical Association neither approves nor disapproves of the articles and programs reported.*

TELEVISION

Sunday, Oct. 16, 1955

NBC-TV, 2 p. m. EDT. "American Inventory." A dramatization entitled "The Ounce and the Pound" points up the need for developing preventive measures against mental illness.

Monday, Oct. 17, 1955

ABC-TV, 9:30 p. m. EDT. "Medical Horizons" visits the University of Pennsylvania School of Medicine for a report on the training of a medical student.

Wednesday, Oct. 19, 1955

NBC-TV, 11:30 a. m. EDT. "Medical and Health News" with Howard Whitman, a regular segment of the "Home" show.

Monday, Oct. 24, 1955

NBC-TV, 9 p. m. EDT. "Medic," in a story titled "When I Was Young," tells of a woman going through menopause and explains medicine's new methods of dealing with it.

ABC-TV, 9:30 p. m. EDT. "Medical Horizons" shows the rigorous activities of residency training in a presentation from Johns Hopkins Hospital in Baltimore.

MAGAZINES

Look, Nov. 1, 1955 (On newsstands Oct. 18)

"Why Doctors Face So Many Law Suits," by Louis J. Regan, M.D., LL.B.

The author points out that the increased number of malpractice suits against doctors do not "reflect a lessening of efficiency or training or dedication on the part of doctors." He says: "In terms of the many millions of medical cases which are treated each year by the nation's physicians, there has been no increase in *actual* malpractice; there has been, however, a staggering increase in the number of malpractice *claims.*" The article includes an outline of a doctor's legal obligations, a summary of what medical societies are doing to prevent or reduce malpractice cases, and "advice" to patients that, if followed, would cut down the number of unjustified claims.

Prairie Farmer, Oct. 1, 1955

"More Doctors for Rural Communities," by Paul C. Johnson

Ten years ago farm folks were very much worried about the shortage of rural doctors, but this problem is "well on the way to being solved." Mr. Johnson, the editor of *Prairie Farmer,* attributes the progress to "a great surge of interest in rural health by the communities themselves" and "direct attack on the problem . . . by the doctors, working through the American Medical Association and state and county medical societies." The article tells in detail about the work of the American Medical Association's Council on Rural Health.

Harper's Magazine, October, 1955

"Alvarez: Everybody's Family Doctor," by Greer Williams

A profile of Walter Clement Alvarez, M.D., former Mayo Clinic physician who now devotes his time to writing and editing.

The American Weekly, Oct. 16, 1955

"The Sick Mind," by John Gunther

Patients at Creedmoor State Hospital, Queens Village, N. Y., are kept busy with recreation and occupational therapy as a part of their treatment for mental illness.

Saturday Evening Post, Oct. 8, 1955

"Good News for Disabled Wage Earners," by Richard Carter

"With parallel spurts in activity on the part of industry and labor, it is entirely possible that, within the next decade, America's skilled working men and women, its most precious resource, will all be protected by rehabilitation programs." The article reports on efforts of private insurance companies, workmen's compensation boards, and labor organizations to rehabilitate injured workers.

Ladies' Home Journal, October, 1955

"New Hope for Scarred Skins," by Dawn Crowell Norman

Personal experience story of a housewife who had surgical planing treatment for her scarred face. Accompanying the article is a statement by George M. Lewis, M.D., president, American Board of Dermatology and Syphilology, that gives scientific information on the procedure and estimates the cost.

DEATHS

Strong, Robert Alexander, Pass Christian, Miss.; born in New Orleans Nov. 17, 1884; Medical Department of Tulane University of Louisiana, New Orleans, 1907; from 1929 to 1944 professor and head of the department of pediatrics at his alma mater, where he joined the faculty in 1912 as assistant in diseases of children and later became instructor in diseases of children, lecturer and instructor in diseases of children, assistant professor of pediatrics, clinical professor of pediatrics, and professor of clinical pediatrics, resigning at the close of session 1922-1923; from 1929 to 1944 he was professor of pediatrics, faculty of the Graduate School of Medicine of Tulane University, and from 1937 to 1944 was professor of pediatrics in the department of graduate medical studies; specialist certified by the American Board of Pediatrics; past vice-president of the Mississippi State Medical Association and the Association of American Teachers of the Diseases of Children; past-president of the Louisiana State Pediatric Society; chairman of the section on pediatrics of the Southern Medical Association from 1926 to 1927; charter member and fellow of the American Academy of Pediatrics and from 1930 to 1940 Louisiana state chairman for region 2; charter member and past-president of the Aero Medical Association of the United States; member of the board of administrators, New Orleans Child Guidance Clinic, 1930-1932; served during World Wars I and II; formerly on the staffs of the Charity Hospital, Presbyterian Hospital, Touro Infirmary, and the Baptist Hospital; editor-in-chief of the *Journal of Aviation Medicine* when it was organized in 1930 and served as a member of the advisory editorial board; served as editor of the *International Medical Digest,* on the board of editorial collaborators of the *Archives of Pediatrics,* and as a member of the advisory editorial board, *American Journal of Syphilis* and *Journal of Pediatrics;* at one time editor-in-chief, *Orleans Parish Medical Society Bulletin;* for many years member of the editorial board of *Advances in Pediatrics;* author of numerous articles in various medical journals; died Aug. 7, aged 70.

Key, John Albert ⊕ St. Louis; born in Jackson, Miss., April 21, 1890; Johns Hopkins University School of Medicine, Baltimore, 1918; interned at the Massachusetts General Hospital and the Children's Hospital in Boston; in 1921-1922 instructor of applied physiology at Harvard Medical School, Boston; served as professor of clinical orthopedic surgery at Washington University School of Medicine; specialist certified by the American Board of Orthopaedic Surgery; vice-chairman, Section on Orthopedic Surgery, 1939-1940, and chairman, 1940-1941, of the American Medical Association; past-president of the American Orthopaedic Association; member of the American Surgical Association, Clinical Orthopaedic Society, Southern Surgical Association, and the American Academy of Orthopaedic Society; fellow of the American College of Surgeons; served during World War I; on the staffs of the Barnes, St. Louis Children's, St. Louis City and Jewish hospitals, and the Shriners Hospital for Crippled Children; joint author with Dr. H. Earle Conwell of "Management of Fractures, Dislocations and Sprains"; died at his summer home in Wesco, Mo., Aug. 6, aged 65, of coronary thrombosis.

Taylor, Malcolm Cushing ⊕ Cincinnati; born in Boston June 5, 1901; Harvard Medical School, Boston, 1929; specialist certified by the American Board of Psychiatry and Neurology; served in the U. S. Army Air Force from 1942 to 1946; fellow of the American Psychiatric Association; charter member of the New Jersey Neuropsychiatric Society; member of the New England Society of Psychiatry; assistant physician at the New Jersey State Hospital in Greystone Park, N. J., from 1931 to 1939; assistant in neurology at the Vanderbilt Clinic, Presbyterian Hospital, New York City, from 1939 to 1942; consultant in neuropsychiatry at the Morristown Memorial Hospital in Morristown, N. J., from 1939 to 1942; senior psychiatrist at the Columbus (Ohio) State Hospital, 1947-1948; clinical director of the Arizona State Hospital in Phoenix, Ariz., 1948-1949, when he became clinical director of the Norwich (Conn.) State Hospital, serving from 1949 to May, 1955; since May 16, 1955, assistant superintendent of the Rollman Receiving Hospital; died Aug. 22, aged 54, of coronary occlusion.

Randel, Henry Andreas ⊕ Fresno, Calif.; born in Berwick, Pa., April 16, 1902; Northwestern University Medical School, 1929; specialist certified by the American Board of Internal Medicine; served as chairman of the council on rural health of the California Medical Association; member of the House of Delegates of the American Medical Association in 1953 and since 1954 a member of the Council on Rural Health; fellow of the American College of Chest Physicians; member of the National Tuberculosis Association, the American Trudeau Society, and the American Heart Association; served as president of the Fresno County Tuberculosis Association, of which he was director for 12 years; on the staffs of the Fresno Community Hospital, General Hospital of Fresno County, where he interned, and St. Agnes Hospital; died in Morro Bay in August, aged 53.

Kagan, Solomon R., Boston; born in Orany, Lithuania, Dec. 15, 1889; an ordained rabbi; University of Dorpat Faculty of Medicine, Russia, 1917; the next five years he served as government physician in the Crimea and as health officer in Rostov-on-the Don; came to the United States in 1922; practiced medicine in Springfield and then in Roxbury, Mass.; in 1929 appointed a member of the staff of the Jewish Memorial Hospital in Roxbury; held honorary membership in the Eugene Field Society and in the Israel Society of Medical History; author of "Researches in Hebrew Literature," "American Jewish Physicians of Note," "Jewish Contributions to Medicine in America," "Jewish Medicine," "Life and Letters of Fielding H. Garrison," and others; formerly associate editor of "Medical Leaves"; editor of the "Victor Robinson Memorial Volume" and of the "Abraham Levinson Anniversary Volume"; a member of the editorial board of *Clinical Medicine;* associate editor of *The Medical Way;* died in the Beth Israel Hospital July 28, aged 65, of cerebral vascular accident.

Yaskin, Joseph Charles ⊕ Philadelphia; born Aug. 1, 1891; Medico-Chirurgical College of Philadelphia, 1914; professor of neurology at the Graduate School of Medicine of the University of Pennsylvania and assistant professor of psychiatry at the University of Pennsylvania School of Medicine; specialist certified by the American Board of Psychiatry and Neurology; member of the American Neurological Association, American Psychiatric Association, and the Association for Research in Nervous and Mental Diseases; past-president of the Philadelphia Neurological Society and the Philadelphia Psychiatric Society; served during World War I; received citations from two Presidents for his work with the Selective Service System; psychiatric consultant to the Army, Navy, and Veterans Administration; on the staffs of the Philadelphia Psychiatric, Philadelphia General, and Pennsylvania hospitals and the Graduate Hospital, where he died Aug. 10, aged 64, of coronary thrombosis.

Baker, May Davis, Rutledge, Pa.; Howard University College of Medicine, Washington, D. C., 1896; member of the Medical Society of the District of Columbia; died Aug. 22, aged 89, of arteriosclerotic heart disease.

Barrett, Frederick J., Kenmore, N. Y.; University of Buffalo School of Medicine, 1897; formerly practiced in Buffalo, where he was on the staff of the Buffalo Eye and Ear Infirmary; died Aug. 17, aged 81, of arteriosclerotic heart disease.

Belnap, H. Earl ⊕ Sparks, Nevada; University of Illinois College of Medicine, Chicago, 1924; past-president of the Washoe County Medical Society; member of the American Academy of General Practice; formerly on the state board of health; served during World War I; past-president of the Sparks Lions Club; died in Reno June 29, aged 64, of acute myocardial infarction and hypertension.

⊕ Indicates Member of the American Medical Association.

Buchanan, Edwin Porter ⊕ Pittsburgh; Harvard Medical School, Boston, 1917; professor of surgery at the University of Pittsburgh School of Medicine; specialist certified by the American Board of Surgery; fellow of the American College of Surgeons; served overseas during World War I; a director of the Pittsburgh Skin and Cancer Foundation; on the staff of the Mercy Hospital; died in Beverly, Mass., July 11, aged 65, of emphysema and congestive heart disease.

Chowning, William C. ⊕ New Smyrna Beach, Fla.; University of Maryland School of Medicine, Baltimore, 1904; died June 24, aged 72, of congestive heart disease.

Christman, Paul William ⊕ Sacramento, Calif.; Johns Hopkins University School of Medicine, Baltimore, 1916; member of the California Society of Pathologists and the Sacramento Society for Medical Improvement; on the staff of Mercy Hospital; died June 23, aged 65, of coronary occlusion.

Dando, George H. ⊕ Hartford City, Ind.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, Chicago, 1905; died June 28, aged 87, of cancer of the stomach.

DiPasquale, Stephen Gaspar ⊕ Buffalo; University of Buffalo School of Medicine, 1929; interned at the Sisters of Charity Hospital, where he was on the staff and where he died June 1, aged 50, of a fracture of the skull.

Duckworth, Milton ⊕ Carolina, R. I.; College of Physicians and Surgeons, Boston, 1900; served as a member of the House and Senate in the Rhode Island General Assembly; town council president, town health officer, state medical examiner, and superintendent of Charlestown schools; died Aug. 26, aged 80, of coronary thrombosis.

Duncan, Isaac Greenwood ⊕ Memphis, Tenn.; College of Physicians and Surgeons, Memphis, 1909; specialist certified by the American Board of Urology; formerly on the faculty of the University of Tennessee College of Medicine; member of the American Urological Association; fellow of the American College of Surgeons; past-president of the Memphis Urological Society; served on the staffs of the Methodist, St. Joseph's, and Baptist hospitals; died July 24, aged 70, of coronary thrombosis.

Goff, Milton Guy, Utica, Mich.; Detroit Homeopathic College, 1905; died in St. John's Hospital, Detroit, June 28, aged 74, of ruptured aneurysm of the abdominal aorta.

Hall, Philip Vought ⊕ Moline, Ill.; Chicago Medical School, 1936; member of the American Society of Anesthesiologists; served during World War II; died in Nanuet, N. Y., June 16, aged 48, of brain abscess.

Haynes, Halbert Andrew ⊕ Chicago; University of Louisville (Ky.) Medical Department, 1898; interned at the Illinois Charitable Eye and Ear Infirmary; served during World War I; specialist certified by the American Board of Ophthalmology; died in St. Petersburg, Fla., July 5, aged 84, of acute cholelithiasis.

Henderson, Abby May, Niles, Mich.; University of Colorado School of Medicine, Denver, 1912; on the staff of Powating Hospital; died July 26, aged 75, of carcinoma of the uterus.

Jones, Charles Bonham, Knoxville, Tenn.; Kentucky School of Medicine, Louisville, 1898; for many years president of the board of Fort Sanders Hospital; at one time on the faculty of Lincoln Memorial University Medical Department; died in the Fort Sanders Presbyterian Hospital Aug. 11, aged 88, of cancer of the prostate and pneumonia.

Kauffman, William Allen ⊕ Marshalltown, Iowa; State University of Iowa College of Homeopathic Medicine, Iowa City, 1898; on the staffs of St. Thomas Mercy Hospital and the Evangelical Hospital, where he died July 29, aged 81, of arteriosclerotic heart disease.

Keneipp, Edgar Percy, Sterling, Va.; George Washington University School of Medicine, Washington, D. C., 1909; died July 7, aged 90.

Keyser, Carl Shurz ⊕ Washington, D. C.; Columbian University Medical Department, Washington, 1898; formerly on the staff of the Garfield Memorial Hospital; died July 22, aged 83, of arteriosclerotic heart disease.

Landham, Jackson Wiley ⊕ Atlanta, Ga.; Atlanta School of Medicine, 1911; specialist certified by the American Board of Radiology; member of the Radiological Society of North America, Georgia Radiological Society, and the American College of Radiology; chief roentgenologist, St. Joseph's Infirmary, visiting roentgenologist at the Piedmont Hospital, Grady Memorial Hospital, Georgia Baptist Hospital, and the Crawford W. Long Memorial Hospital, where he died July 1, aged 71, of ruptured duodenal ulcer.

Lester, Harry Sumner ⊕ Streator, Ill.; State University of Iowa College of Medicine, Iowa City, 1898; member of the American Academy of Ophthalmology and Otolaryngology; formerly mayor of Streator; veteran of World War I; for two terms county coroner; for years served on the public school board; on the staff of St. Mary's Hospital; died in Veterans Administration Hospital, Dwight, June 24, aged 84, of cerebral vascular accident and arteriosclerotic heart disease.

Lightstone, Abraham ⊕ New York City; University and Bellevue Hospital Medical College, New York City, 1902; fellow of the American College of Surgeons; taught at New York University and Fordham University; served on the staffs of the Sydenham and Jewish Memorial hospitals; died in Atlantic Beach, L. I., Aug. 6, aged 80, of coronary disease.

Little, George Reed, Wichita, Kan.; Northwestern University Medical School, Chicago, 1907; served on the board of the Wesley Hospital; died near Lamar, Colo., July 13, aged 75, of myocardial infarction.

Londrigan, Joseph Francis II ⊕ Hoboken, N. J.; St. Louis University School of Medicine, 1937; fellow of the American College of Surgeons; served overseas during World War II; member of the Hudson County Mosquito Commission; physician and surgeon for the city fire department; on the staff of the Jersey City Medical Center; interned at St. Mary's Hospital, where he was a member of the staff and where he died Aug. 1, aged 46.

Longenecker, Charles Willard ⊕ Kingman, Kan.; Kansas City (Mo.) Medical College, 1899; veteran of World War I; served as county health officer and coroner; died Aug. 6, aged 83, of arteriosclerosis.

McCarver, William C. ⊕ Vidette, Ga.; Memphis (Tenn.) Hospital Medical College, 1910; on the staff of the Burke County Hospital in Waynesboro; died in the University Hospital, Augusta, July 24, aged 72, of cerebral hemorrhage.

McGrail, Matthew Augustine ⊕ Bradford, Pa.; University of Pittsburgh School of Medicine, 1931; interned at the Allegheny General Hospital in Pittsburgh and the Clearfield (Pa.) Hospital; served in the U. S. Naval Reserve during World War II; on the staff of the Bradford Hospital; died in the Warren (Pa.) General Hospital June 21, aged 52, of acute myocardial infarction.

McIntyre, Douglas, St. John, Wash.; Georgetown University School of Medicine, Washington, D. C., 1901; past-president of the Whitman County Medical Society; formerly mayor and member of the school board; served during World War I; died July 25, aged 79, of chronic pyelonephritis.

Maloney, Arnold Hamilton, Charlotte Amalie, V. I.; Indiana University School of Medicine, Indianapolis, 1929; on the staff of the Knud Hansen Memorial Hospital; formerly on the faculty of Howard University School of Medicine in Washington, D. C.; died in Freedmen's Hospital, Washington, D. C., Aug. 5, aged 67, of myocardial infarction.

Manson, Richard Hawes ⊕ McKenney, Va.; University College of Medicine, Richmond, 1905; died in Petersburg July 3, aged 72, of cerebral hemorrhage.

Mason, David Adams ⊕ Selma, Ala.; Maryland Medical College, Baltimore, 1904; on the staffs of the Good Samaritan Hospital and Selma Baptist Hospital, where he died Aug. 8, aged 73.

Meacham, Hubert Franklin ⊕ El Paso, Texas; University of Illinois College of Medicine, Chicago, 1916; formerly practiced in Chicago, where he was on the staffs of the Bethany and Garfield Park Community hospitals; member of the Illinois State Medical Society; died in La Jolla, Calif., July 29, aged 64, of arteriosclerosis and myocardial infarction.

Meagher, John Ignatius ⊕ Colonel, U. S. Army, retired, College Park, Md.; Fordham University School of Medicine, New York City, 1913; entered the Medical Corps of the U. S. Army Nov. 30, 1920, and retired Sept. 30, 1949, for disability in line of duty; served during World Wars I and II; assistant director of student health, University of Maryland; died in the Walter Reed Army Hospital, Washington, D. C., Aug. 1, aged 65, of myocardial infarction.

Miller, William John, Estacada, Ore.; University of Oregon Medical School, Portland, 1910; died in Gresham April 30, aged 75, of cancer.

Nassar, Naif Easa ⊕ Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1909; on the staff of the Illinois Masonic Hospital, where he died Aug. 24, aged 68, of bronchiogenic carcinoma.

Nicholson, John Henry ⊕ Hart, Mich.; Detroit College of Medicine, 1897; for 25 years treasurer of the Oceana Hospital, where he died Aug. 6, aged 86, of duodenal ulcer.

Norrel, John W., Indianapolis; Western Reserve University Medical Department, Cleveland, 1898; died June 17, aged 81, of cardiovascular disease.

Owen, James Alexander ⊕ Detroit; Meharry Medical College, Nashville, Tenn., 1916; served as president of the board of trustees of the Wilberforce University in Cleveland; died in the Wayne Diagnostic Hospital July 6, aged 63, of monocytic leukemia.

Pattison, Jean Harwood, New York City; Cornell University Medical College, New York City, 1919; member of the Medical Society of the State of New York; for many years associated with the St. Luke's Hospital; formerly on the staff of Bellevue Hospital; died in Falmouth, Mass., May 31, aged 68, of carcinoma of the pancreas.

Pavlides, Theodosios Demetrios Khadzi-Tolosogleu, Fresno, Calif.; National University of Athens School of Medicine, Greece, 1911; for many years practiced in San Francisco, where he was chief of staff at the Franklin Hospital; died Aug. 23, aged 65.

Perry, Benjamin, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; retired city and federal food inspector; died Aug. 6, aged 78, of coronary occlusion.

Peters, Edgar, Miami, Fla.; Atlanta School of Medicine, 1911; member of the Florida Medical Association; in 1915 president of the Dade County Medical Association; from 1912 to 1915 first health officer for the City of Miami; on the staff of the Jackson Memorial Hospital from 1922 to 1952; died July 16, aged 69, of bronchopneumonia and arteriosclerosis.

Ruddick, Hobart Conway ⊕ Evansville, Ind.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1912; past-president of the Vanderburgh County Medical Society; past-president of the Indiana State Board of Medical Registration and Examination; formerly member of the city board of education; on the staffs of the Protestant Deaconess Hospital, Welborn Memorial Baptist Hospital, and St. Mary's Hospital, where he died July 28, aged 69, of amyotrophic lateral sclerosis.

Russell, Eldon Leo ⊕ Cleveland; Western Reserve University School of Medicine, Cleveland, 1921; interned at the Cleveland City Hospital; for many years physician on the medical staff of the city board of education; member of the Cleveland Academy of Medicine; on the staff of the Evangelical Deaconess Hospital, where he died Aug. 22, aged 62, of leukemia.

Schlesman, Charles Harry ⊕ Allentown, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1897; an associate member of the American Medical Association; on the staff of the Allentown Hospital and the Sacred Heart Hospital, where he died July 19, aged 84, of ruptured duodenal ulcer.

Schmit, Felix ⊕ Milwaukee; Milwaukee Medical College, 1900; on the staffs of St. Michael, St. Joseph's, and St. Anthony's hospitals; died July 24, aged 82, of chronic myocardial degeneration and arteriosclerosis.

Schneider, Elias ⊕ New York City; University of St. Andrews Conjoint Medical School, St. Andrews and Dundee, Scotland, 1934; specialist certified by the American Board of Psychiatry and Neurology; member of the American Psychosomatic Society; served during World War II; formerly a resident in the New York State Psychiatric Institute and Hospital; died in the Mount Sinai Hospital June 20, aged 47, of a heart attack.

Siefert, Carl Fred, Milwaukee; Rush Medical College, Chicago, 1903; served on the staffs of the Deaconess and Mount Sinai hospitals; died in the Milwaukee County Hospital, Wauwatosa, Wis., July 19, aged 76, of bronchopneumonia, cerebral thrombosis with infarction, and arteriosclerosis.

Terrell, Earley Thomas Jr. ⊕ Richmond, Va.; Medical College of Virginia, Richmond, 1929; specialist certified by the American Board of Psychiatry and Neurology; member of the Richmond Academy of Medicine and the American Psychiatric Association; served in the U. S. Naval Reserve during World War II; at one time on the staff of the Eastern State Hospital in Williamsburg; on the staff of the Veterans Administration Hospital, where he died July 17, aged 48, of carcinoma of the stomach.

Thornton, Ross Cook Blakeney, Vale, Ore.; University of Oregon Medical School, Portland, 1931; interned at the Multnomah Hospital in Portland; on the staff of the Malheur Memorial Hospital in Nyssa; died July 25, aged 53, of coronary thrombosis.

Tomlinson, Carlton Hagg ⊕ Indianapolis; Medical College of Indiana, Indianapolis, 1895; for many years county health commissioner; on the staff of the Riverview Hospital in Noblesville, where he died June 20, aged 86, of cardiorenal disease.

Trimble, William Hugh ⊕ Atlanta, Ga.; University of Pennsylvania School of Medicine, Philadelphia, 1927; fellow of the American College of Physicians; specialist certified by the American Board of Internal Medicine; served during World War II; on the faculty of the Emory University School of Medicine; on the staffs of the Emory University, Georgia Baptist and Piedmont hospitals; died July 26, aged 52, of adenocarcinoma of the lung.

Varner, Winter Thomas ⊕ Flushing, Ohio; University of Pittsburgh School of Medicine, 1938; served during World War II; died July 1, aged 42, of a heart attack.

Walsh, Edward Francis ⊕ Castle Point, N. Y.; Fordham University School of Medicine, New York City, 1911; formerly practiced in New York City, where he was on the staffs of the New York Foundling Hospital, Misericordia Hospital, and St. Vincent's Hospital, where he interned; served on the staff of the Mary Immaculate Hospital in Jamaica; chief physician at the Veterans Administration Hospital; died in Beacon June 26, aged 70, of pneumonia.

Williams, Harry George ⊕ Burlington, Vt.; University of Vermont College of Medicine, Burlington, 1906; member of the New Hampshire Medical Society; formerly practiced in Keene, N. H., where he was on the staff of the Elliot Community Hospital; died July 30, aged 71, of cancer of the pancreas and liver.

Wilson, Edmund Winfred ⊕ Larchmont, N. Y.; Tufts College Medical School, Boston, 1907; an associate member of the American Medical Association; for many years assistant superintendent of the Boston City Hospital; formerly affiliated with the medical department of the Metropolitan Life Insurance Company; died in the New Rochelle (N. Y.) Hospital Aug. 14, aged 70, of cirrhosis of the liver.

Wolff, Maurice Wolkowitz, New Rochelle, N. Y.; Albany (N. Y.) Medical College, 1904; resident at the Passaic County Welfare Home (Hope Dell) in Paterson, N. J., where he died Aug. 6, aged 74, of coronary occlusion.

Wonka, Warren Joseph, Sarasota, Fla.; Harvard Medical School, Boston, 1949; served an internship and residency at the Charity Hospital of Louisiana in New Orleans; an officer in the Medical Corps of the U. S. Army Reserve from July 1, 1953, to June 30, 1955, when he was retired for disability; certified by the National Board of Medical Examiners; died in North Hills, N. Y., July 19, aged 31, of carcinoma of the lung and liver.

FOREIGN LETTERS

AUSTRIA

Solitary Pelvic Kidney.—At the meeting of the Austrian Society of Urology on April 27, Dr. Pfeiffer reported on a 35-year-old man who had a solitary kidney on the left side. The patient was hospitalized because of colic-like pains, but his symptoms subsided within a few days. He was subjected to intravenous pyelography, retrograde pyelography, pneumoradiography, and aortography, but none of these examinations revealed a second kidney. He also had spina bifida, testicular atrophy on the left side, and azoospermia. There was no renal decompensation.

Unusual Form of Perinephritis.—At the same meeting Dr. Übelhör told of a 32-year-old patient with severe pains in the right lumbar region of several months' duration that could be suppressed only by narcotics. The pyelograms did not permit a definite diagnosis. Surgical exposure of the kidney showed the entire anterior surface of the kidney to be covered with a sugar-icing-like covering that fluctuated. Puncture revealed a clear ropy fluid, which could be drawn out into a thread. The entire formation could be stripped off of the kidney without much bleeding, because it had a thick, fibrous wall. The patient was free from symptoms during the months following this operation, and there were no changes in the pyelographic pictures.

Effect of Estrogens on the Testes.—At the same meeting Dr. Zehetgruber discussed the step-like progression of the effects of estrogen treatment on the basis of histological sections of testes obtained from patients with carcinoma of the prostate. During the early part of the treatment, interstitial edema develops, which leads to nutritional changes within the tubules. During the next stage immature seminiferous cells slough off into the lumen of the tubules, and the basal membrane becomes increasingly thick. In the terminal stage, after prolonged treatment, fibrosis of the testis, accompanied by hyalinization of the basal membrane, results. The interstitial cells generally remain unchanged. In patients in whom the prostatic carcinoma remained untreated, testicular sections were studied before and after intravenous treatment with phosphorylated diethylstilbestrol. The sections revealed the pronounced effect exerted by this preparation within a short time. The effects produced by cortisone consisted chiefly in changes and disturbances in mitosis; otherwise the changes were similar to those induced by estrogens. The testicular biopsies were obtained by stab incisions into the tunica albuginea. A piece the size of a pea was removed from the parenchymatous material oozing through the stab wound, and the opening was closed. The sections were obtained mostly from material that became available as the result of therapeutic orchiectomies.

BRAZIL

Repeated Cesarean Section.—To determine whether repeated cesarean sections are technically more difficult and more dangerous to the patient than the first operation, Araujo and Neme studied the records of 951 patients on whom cesarean sections were performed. Of these patients, 133, or 14%, had had repeated cesarean sections (*An. brasil. ginec.* **20**:253, 1955). In 120 of the 133 patients the operation had been performed twice, and in 13, three times. Pelvic contraction was the indication for operation in 89, cervical dystocia in 17, placenta previa in 6, cephalopelvic disproportion in 4, functional dystocia and difficult presentation in 3, previous tumor and incomplete uterine rupture in 2, and fetal anoxia associated with placenta previa in one. Uterine rupture occurred in only three patients, and the integrity of the uterus was preserved in five patients in spite of the presence of Bandl's ring. In the repeated cesarean sections, spinal anesthesia was used in 71%, while in the first section it was used in 66%. Low transverse section was used in 95.4%, and in 4.6% corporal section was performed because of technical difficulties created by adhesions. While the maternal fatality rate was 3.6% in the first cesarean sections, in repeated sections it was only 0.75%. The fetal mortality rate was 9.4% for the first cesarean sections and 3.7% for the repeated sections. These improved results of repeated sections are attributed by the authors to better care of the patients and the anticipation of difficulties connected with the repetition of the procedure.

High Caloric Value in Parenteral Feeding.—After major operations performed on the esophagus and the stomach and after multiple visceral resections, it is necessary to see that the patient gets enough water, electrolytes, proteins, and calories. Owing to the difficulty of introducing fat directly into the veins to furnish an adequate supply of calories, surgeons are more and more resorting to alcohol as an abundant source of energy. Dr. Fernando Paulino in *Revista brasileira de cirurgia* (**29**:339, 1955) reported a study of this procedure in 200 patients on whom he performed major operations. These patients received intravenously a total of 1,600 liters of solutions containing 10% dextrose, 5% amino acids, 9% alcohol, and electrolytes and vitamins. No serious accidents were observed. The solution yields about 1,000 calories per liter, thus giving the patients an adequate caloric intake without danger of superhydration. A group of 30 patients was studied in regard to water; total nitrogen, sodium, and potassium balance; glycosuria if any; and the nonprotein nitrogen level in the blood. The study revealed that (1) positive nitrogen balance could be maintained by parenteral therapy alone; (2) the intravenous use of alcohol did not interfere with the water, sodium, and potassium balance or the nonprotein nitrogen level; and (3) glycosuria seldom occurred and could be corrected by reducing the speed of the infusion.

ENGLAND

Mental Hospital Reports.—The annual report of the Crichton Royal Hospital, Dumfries, states that electroconvulsive therapy is the treatment of choice in manic-depressive disorders and involutional melancholia and insulin coma therapy is recommended for schizophrenia. Thiopental and succinylcholine are being used increasingly with electroconvulsive therapy. Disulfiram continues to be used in selected patients with alcoholism, but always in conjunction with psychotherapy and such other treatment as insulin and large doses of vitamins, which have been found useful in chronic alcoholism. Modified insulin therapy, carbon dioxide therapy, abreactive therapy, acetylcholine injections, and prolonged narcosis continued to be used in selected patients with neuroses and mild psychoses. During the year 19 standard leukotomies were performed. Fully one-third of those who had this operation have been discharged as socially recovered, and, of these, the majority are gainfully employed. Another third are much improved though still requiring hospitalization. The best results continue to be obtained in those whose preoperative personalities were largely intact and who had well-adapted personalities before their breakdown. In appraising these results it is necessary to bear in mind that with few exceptions the patients operated on were schizophrenics who failed to respond to other methods of treatment and who were otherwise destined to spend the remainder of their lives as severe mental invalids. To date, 491 leukotomies have been performed on 450 patients.

In the department of clinical research, work was continued on the biochemical aspects of the mechanism of action of *d*-lysergic acid diethylamide. In vitro studies of the effect of the drug did not confirm earlier findings that small concentrations of it stimulated cerebral respiration. At high concentrations of *d*-lysergic acid diethylamide, however, the respiration of

---

The items in these letters are contributed by regular correspondents in the various foreign countries.

Meagher, John Ignatius ⊕ Colonel, U. S. Army, retired, College Park, Md.; Fordham University School of Medicine, New York City, 1913; entered the Medical Corps of the U. S. Army Nov. 30, 1920, and retired Sept. 30, 1949, for disability in line of duty; served during World Wars I and II; assistant director of student health, University of Maryland; died in the Walter Reed Army Hospital, Washington, D. C., Aug. 1, aged 65, of myocardial infarction.

Miller, William John, Estacada, Ore.; University of Oregon Medical School, Portland, 1910; died in Gresham April 30, aged 75, of cancer.

Nassar, Naif Easa ⊕ Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1909; on the staff of the Illinois Masonic Hospital, where he died Aug. 24, aged 68, of bronchiogenic carcinoma.

Nicholson, John Henry ⊕ Hart, Mich.; Detroit College of Medicine, 1897; for 25 years treasurer of the Oceana Hospital, where he died Aug. 6, aged 86, of duodenal ulcer.

Norrel, John W., Indianapolis; Western Reserve University Medical Department, Cleveland, 1898; died June 17, aged 81, of cardiovascular disease.

Owen, James Alexander ⊕ Detroit; Meharry Medical College, Nashville, Tenn., 1916; served as president of the board of trustees of the Wilberforce University in Cleveland; died in the Wayne Diagnostic Hospital July 6, aged 63, of monocytic leukemia.

Pattison, Jean Harwood, New York City; Cornell University Medical College, New York City, 1919; member of the Medical Society of the State of New York; for many years associated with the St. Luke's Hospital; formerly on the staff of Bellevue Hospital; died in Falmouth, Mass., May 31, aged 68, of carcinoma of the pancreas.

Pavlides, Theodosios Demetrios Khadzi-Tolosogleu, Fresno, Calif.; National University of Athens School of Medicine, Greece, 1911; for many years practiced in San Francisco, where he was chief of staff at the Franklin Hospital; died Aug. 23, aged 65.

Perry, Benjamin, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; retired city and federal food inspector; died Aug. 6, aged 78, of coronary occlusion.

Peters, Edgar, Miami, Fla.; Atlanta School of Medicine, 1911; member of the Florida Medical Association; in 1915 president of the Dade County Medical Association; from 1912 to 1915 first health officer for the City of Miami; on the staff of the Jackson Memorial Hospital from 1922 to 1952; died July 16, aged 69, of bronchopneumonia and arteriosclerosis.

Ruddick, Hobart Conway ⊕ Evansville, Ind.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1912; past-president of the Vanderburgh County Medical Society; past-president of the Indiana State Board of Medical Registration and Examination; formerly member of the city board of education; on the staffs of the Protestant Deaconess Hospital, Welborn Memorial Baptist Hospital, and St. Mary's Hospital, where he died July 28, aged 69, of amyotrophic lateral sclerosis.

Russell, Eldon Leo ⊕ Cleveland; Western Reserve University School of Medicine, Cleveland, 1921; interned at the Cleveland City Hospital; for many years physician on the medical staff of the city board of education; member of the Cleveland Academy of Medicine; on the staff of the Evangelical Deaconess Hospital, where he died Aug. 22, aged 62, of leukemia.

Schlesman, Charles Harry ⊕ Allentown, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1897; an associate member of the American Medical Association; on the staff of the Allentown Hospital and the Sacred Heart Hospital, where he died July 19, aged 84, of ruptured duodenal ulcer.

Schmit, Felix ⊕ Milwaukee; Milwaukee Medical College, 1900; on the staffs of St. Michael, St. Joseph's, and St. Anthony's hospitals; died July 24, aged 82, of chronic myocardial degeneration and arteriosclerosis.

Schneider, Elias ⊕ New York City; University of St. Andrews Conjoint Medical School, St. Andrews and Dundee, Scotland, 1934; specialist certified by the American Board of Psychiatry and Neurology; member of the American Psychosomatic Society; served during World War II; formerly a resident in the New York State Psychiatric Institute and Hospital; died in the Mount Sinai Hospital June 20, aged 47, of a heart attack.

Siefert, Carl Fred, Milwaukee; Rush Medical College, Chicago, 1903; served on the staffs of the Deaconess and Mount Sinai hospitals; died in the Milwaukee County Hospital, Wauwatosa, Wis., July 19, aged 76, of bronchopneumonia, cerebral thrombosis with infarction, and arteriosclerosis.

Terrell, Earley Thomas Jr. ⊕ Richmond, Va.; Medical College of Virginia, Richmond, 1929; specialist certified by the American Board of Psychiatry and Neurology; member of the Richmond Academy of Medicine and the American Psychiatric Association; served in the U. S. Naval Reserve during World War II; at one time on the staff of the Eastern State Hospital in Williamsburg; on the staff of the Veterans Administration Hospital, where he died July 17, aged 48, of carcinoma of the stomach.

Thornton, Ross Cook Blakeney, Vale, Ore.; University of Oregon Medical School, Portland, 1931; interned at the Multnomah Hospital in Portland; on the staff of the Malheur Memorial Hospital in Nyssa; died July 25, aged 53, of coronary thrombosis.

Tomlinson, Carlton Hagg ⊕ Indianapolis; Medical College of Indiana, Indianapolis, 1895; for many years county health commissioner; on the staff of the Riverview Hospital in Noblesville, where he died June 20, aged 86, of cardiorenal disease.

Trimble, William Hugh ⊕ Atlanta, Ga.; University of Pennsylvania School of Medicine, Philadelphia, 1927; fellow of the American College of Physicians; specialist certified by the American Board of Internal Medicine; served during World War II; on the faculty of the Emory University School of Medicine; on the staffs of the Emory University, Georgia Baptist and Piedmont hospitals; died July 26, aged 52, of adenocarcinoma of the lung.

Varner, Winter Thomas ⊕ Flushing, Ohio; University of Pittsburgh School of Medicine, 1938; served during World War II; died July 1, aged 42, of a heart attack.

Walsh, Edward Francis ⊕ Castle Point, N. Y.; Fordham University School of Medicine, New York City, 1911; formerly practiced in New York City, where he was on the staffs of the New York Foundling Hospital, Misericordia Hospital, and St. Vincent's Hospital, where he interned; served on the staff of the Mary Immaculate Hospital in Jamaica; chief physician at the Veterans Administration Hospital; died in Beacon June 26, aged 70, of pneumonia.

Williams, Harry George ⊕ Burlington, Vt.; University of Vermont College of Medicine, Burlington, 1906; member of the New Hampshire Medical Society; formerly practiced in Keene, N. H., where he was on the staff of the Elliot Community Hospital; died July 30, aged 71, of cancer of the pancreas and liver.

Wilson, Edmund Winfred ⊕ Larchmont, N. Y.; Tufts College Medical School, Boston, 1907; an associate member of the American Medical Association; for many years assistant superintendent of the Boston City Hospital; formerly affiliated with the medical department of the Metropolitan Life Insurance Company; died in the New Rochelle (N. Y.) Hospital Aug. 14, aged 70, of cirrhosis of the liver.

Wolff, Maurice Wolkowitz, New Rochelle, N. Y.; Albany (N. Y.) Medical College, 1904; resident at the Passaic County Welfare Home (Hope Dell) in Paterson, N. J., where he died Aug. 6, aged 74, of coronary occlusion.

Wonka, Warren Joseph, Sarasota, Fla.; Harvard Medical School, Boston, 1949; served an internship and residency at the Charity Hospital of Louisiana in New Orleans; an officer in the Medical Corps of the U. S. Army Reserve from July 1, 1953, to June 30, 1955, when he was retired for disability; certified by the National Board of Medical Examiners; died in North Hills, N. Y., July 19, aged 31, of carcinoma of the lung and liver.

FOREIGN LETTERS

AUSTRIA

Solitary Pelvic Kidney.—At the meeting of the Austrian Society of Urology on April 27, Dr. Pfeiffer reported on a 35-year-old man who had a solitary kidney on the left side. The patient was hospitalized because of colic-like pains, but his symptoms subsided within a few days. He was subjected to intravenous pyelography, retrograde pyelography, pneumoradiography, and aortography, but none of these examinations revealed a second kidney. He also had spina bifida, testicular atrophy on the left side, and azoospermia. There was no renal decompensation.

Unusual Form of Perinephritis.—At the same meeting Dr. Übelhör told of a 32-year-old patient with severe pains in the right lumbar region of several months' duration that could be suppressed only by narcotics. The pyelograms did not permit a definite diagnosis. Surgical exposure of the kidney showed the entire anterior surface of the kidney to be covered with a sugar-icing-like covering that fluctuated. Puncture revealed a clear ropy fluid, which could be drawn out into a thread. The entire formation could be stripped off of the kidney without much bleeding, because it had a thick, fibrous wall. The patient was free from symptoms during the months following this operation, and there were no changes in the pyelographic pictures.

Effect of Estrogens on the Testes.—At the same meeting Dr. Zehetgruber discussed the step-like progression of the effects of estrogen treatment on the basis of histological sections of testes obtained from patients with carcinoma of the prostate. During the early part of the treatment, interstitial edema develops, which leads to nutritional changes within the tubules. During the next stage immature seminiferous cells slough off into the lumen of the tubules, and the basal membrane becomes increasingly thick. In the terminal stage, after prolonged treatment, fibrosis of the testis, accompanied by hyalinization of the basal membrane, results. The interstitial cells generally remain unchanged. In patients in whom the prostatic carcinoma remained untreated, testicular sections were studied before and after intravenous treatment with phosphorylated diethylstilbestrol. The sections revealed the pronounced effect exerted by this preparation within a short time. The effects produced by cortisone consisted chiefly in changes and disturbances in mitosis; otherwise the changes were similar to those induced by estrogens. The testicular biopsies were obtained by stab incisions into the tunica albuginea. A piece the size of a pea was removed from the parenchymatous material oozing through the stab wound, and the opening was closed. The sections were obtained mostly from material that became available as the result of therapeutic orchiectomies.

BRAZIL

Repeated Cesarean Section.—To determine whether repeated cesarean sections are technically more difficult and more dangerous to the patient than the first operation, Araujo and Neme studied the records of 951 patients on whom cesarean sections were performed. Of these patients, 133, or 14%, had had repeated cesarean sections (*An. brasil. ginec.* 20:253, 1955). In 120 of the 133 patients the operation had been performed twice, and in 13, three times. Pelvic contraction was the indication for operation in 89, cervical dystocia in 17, placenta previa in 6, cephalopelvic disproportion in 4, functional dystocia and difficult presentation in 3, previous tumor and incomplete uterine rupture in 2, and fetal anoxia associated with placenta previa in one. Uterine rupture occurred in only three patients, and the integrity of the uterus was preserved in five patients in spite of the presence of Bandl's ring. In the repeated cesarean sections, spinal anesthesia was used in 71%, while in the first section it was used in 66%. Low transverse section was used in 95.4%, and in 4.6% corporal section was performed because of technical difficulties created by adhesions. While the maternal fatality rate was 3.6% in the first cesarean sections, in repeated sections it was only 0.75%. The fetal mortality rate was 9.4% for the first cesarean sections and 3.7% for the repeated sections. These improved results of repeated sections are attributed by the authors to better care of the patients and the anticipation of difficulties connected with the repetition of the procedure.

High Caloric Value in Parenteral Feeding.—After major operations performed on the esophagus and the stomach and after multiple visceral resections, it is necessary to see that the patient gets enough water, electrolytes, proteins, and calories. Owing to the difficulty of introducing fat directly into the veins to furnish an adequate supply of calories, surgeons are more and more resorting to alcohol as an abundant source of energy. Dr. Fernando Paulino in *Revista brasileira de cirurgia* (29:339, 1955) reported a study of this procedure in 200 patients on whom he performed major operations. These patients received intravenously a total of 1,600 liters of solutions containing 10% dextrose, 5% amino acids, 9% alcohol, and electrolytes and vitamins. No serious accidents were observed. The solution yields about 1,000 calories per liter, thus giving the patients an adequate caloric intake without danger of superhydration. A group of 30 patients was studied in regard to water; total nitrogen, sodium, and potassium balance; glycosuria if any; and the nonprotein nitrogen level in the blood. The study revealed that (1) positive nitrogen balance could be maintained by parenteral therapy alone; (2) the intravenous use of alcohol did not interfere with the water, sodium, and potassium balance or the nonprotein nitrogen level; and (3) glycosuria seldom occurred and could be corrected by reducing the speed of the infusion.

ENGLAND

Mental Hospital Reports.—The annual report of the Crichton Royal Hospital, Dumfries, states that electroconvulsive therapy is the treatment of choice in manic-depressive disorders and involutional melancholia and insulin coma therapy is recommended for schizophrenia. Thiopental and succinylcholine are being used increasingly with electroconvulsive therapy. Disulfiram continues to be used in selected patients with alcoholism, but always in conjunction with psychotherapy and such other treatment as insulin and large doses of vitamins, which have been found useful in chronic alcoholism. Modified insulin therapy, carbon dioxide therapy, abreactive therapy, acetylcholine injections, and prolonged narcosis continued to be used in selected patients with neuroses and mild psychoses. During the year 19 standard leukotomies were performed. Fully one-third of those who had this operation have been discharged as socially recovered, and, of these, the majority are gainfully employed. Another third are much improved though still requiring hospitalization. The best results continue to be obtained in those whose preoperative personalities were largely intact and who had well-adapted personalities before their breakdown. In appraising these results it is necessary to bear in mind that with few exceptions the patients operated on were schizophrenics who failed to respond to other methods of treatment and who were otherwise destined to spend the remainder of their lives as severe mental invalids. To date, 491 leukotomies have been performed on 450 patients.

In the department of clinical research, work was continued on the biochemical aspects of the mechanism of action of *d*-lysergic acid diethylamide. In vitro studies of the effect of the drug did not confirm earlier findings that small concentrations of it stimulated cerebral respiration. At high concentrations of *d*-lysergic acid diethylamide, however, the respiration of

---

The items in these letters are contributed by regular correspondents in the various foreign countries.

cerebral homogenates and slices was inhibited 15 and 25% respectively. This inhibition was also obtained with the related monoethylamide and when the substrate was pyruvate instead of glucose. In liver preparations a much smaller inhibition of respiration occurred at the high concentration of *d*-lysergic acid diethylamide. In view of the suggestion that a previous injection of nicotinic acid prevented the symptoms of *d*-lysergic acid diethylamide intoxication, thus indicating that the drug might act by inhibiting the pyridine-nucleotide-dependent enzymes, the effect of diphosphopyridine nucleotide on the inhibition by *d*-lysergic acid diethylamide of cerebral respiration was investigated, but with negative results. The observation that the drug affected the metabolism of hexosemonophosphate was reinvestigated, using revised techniques. The hexosemonophosphate changes in vivo were shown to be possibly due to a response in the formed elements of the blood to *d*-lysergic acid diethylamide. Attention has also been directed to 5-hydroxytryptamine, which is reported as having a wide natural distribution in the central nervous system; one of its observed actions (that on smooth muscle) is inhibited by *d*-lysergic acid diethylamide and other structurally related "hallucinogens."

At the Retreat, York, insulin coma is the treatment of choice for schizophrenia as in the Crichton Royal Hospital. During the year this treatment was given to 46 patients, of whom 25 received substantial benefit. Electroshock was the main form of treatment in psychotic depression of the so-called endogenous type. About 66% of this treatment is now given with thiopental and succinylcholine in specially equipped centers. Given by experienced hands the treatment is safe, but the highest standard of safety is best maintained by carrying it out in a properly equipped center where everything is immediately available for even the most unlikely contingency. The treatment may be given to outpatients only if exceptional circumstances make it essential. Complications are fortunately rare, but if they do occur it is better that they occur in the hospital where immediate help is available. During the year 12 or more patients who had begun treatment elsewhere as outpatients were admitted to the hospital. Electroshock ideally should be given to patients in the hospital, at least the first two or three applications, so that reactions can be observed and the patients reassured. Apomorphine has been given to a number of alcoholic patients with some success, though on the whole it has proved disappointing. Chlorpromazine and reserpine have been used to treat states of tension, anxiety, and depression, but so far the results indicate that their use is likely to be limited because, although they produce the kind of effect sought, the effects frequently are not of sufficient strength. *d*-Lysergic acid diethylamide may make a few patients previously immune to psychotherapy more suitable for it, but in some patients it may shorten the course.

An Experimental Health Center.—In April, 1954, a new health center was established in Manchester by the university and sponsored by the Nuffield and the Rockefeller foundations (*J. A. M. A.* **155**:1443 [Aug. 14] 1954). The general practitioner section of the center, which is the only one functioning so far, consists of a central office; four suites, each consisting of a waiting room, examining room, and consulting room; a treatment room; an x-ray room; and a laboratory. The center is administered by a board consisting of the four general practitioners whose offices are in the center, representatives of the university, the city council, the executive committee, and the local medical committee. The combined lists of the four physicians include 13,000 patients. The average attendance at the center has been 3,160 a month. As a result of the experience gained at the center laboratory it was recommended that (1) facilities be provided on the spot for hemoglobin determinations, leukocyte counts, and smears; (2) facilities be provided in every center for practitioners and patients to take their specimens at their convenience for transmission to a central laboratory for more complex tests; (3) results of tests be reported as soon as possible (telephone information is a great help); and (4) if possible a technician should go out with the doctor in his car to take smears or make blood cell counts in the patient's home.

Among the salient points brought out by the laboratory results obtained in this center is the unexpectedly high incidence of anemia that was detected; 50% of the 801 estimations of hemoglobin showed levels of less than 85%, and levels of less than 60% were common. Of 114 throat swabs, only 35 showed any pathological organisms; of these, 4 were penicillin-resistant. The report comments that "it may be questioned whether, even with facilities available, it is worth while doing routine swabs on infected throats." On the other hand, all 60 of the cultures taken from boils and carbuncles grew pathological organisms, of which 20 were penicillin-resistant. The inference drawn from this is that thousands of patients must be receiving penicillin injections for boils that are penicillin-resistant. Of 83 cultures of catheterized urine, 23 were positive and of these, 4 were penicillin-resistant and 4 were sulfonamide-resistant. As these are the two most commonly used drugs in urinary infections, it is suggested that the repeated lapses encountered in practice may be due to failure to determine the drug sensitivity of the organism and the consequent failure to use correct treatment.

This is the only general practitioner health center that has its own x-ray facilities. The work of the x-ray unit is supervised by a radiologist from the local teaching hospital. During the year 1,479 x-ray examinations were made on 1,267 patients, of whom 333 were found to have abnormal findings. Some criticism has been made on the grounds of cost, but the help given to patients and the high percentage of abnormal findings would seem to justify the expense of running this department. Nursing was provided by three nurses from the Manchester District Nursing Institute. By arrangement with the city, they combined the home nursing for the center with the nursing in the center. It is difficult, however, to get nurses for this type of work because of the irregular hours and exposure to inclement weather. On the whole the experiment has succeeded. The team spirit has developed satisfactorily, and the patients have attended in great strength. One of the most important discoveries has been that with all the ancillary help of secretaries and nurses, the work does not diminish and the physicians do not enjoy an easier time.

Epidemic in London Hospital.—Doubt now exists as to whether the epidemic that closed the Royal Free Hospital and that was reported in this section was infectious mononucleosis as was originally suggested. The epidemic has now involved 83 nurses, 5 physicians, 11 of the ancillary staff, 8 students, and 22 of the domestic staff. Doubt is being thrown on the original diagnosis in view of many unusual features that have been observed. The lymph nodes, liver, and spleen are involved, and most of the patients show signs and symptoms of encephalomyelitis or polyneuritis. The disease has usually run a benign course. The incubation period appears to be five to seven days. Most of the victims have been young nurses, but several of those over 40 have been affected. The initial symptom has been vague malaise, followed within one to seven days by mild sore throat; tender enlargement of the lymph nodes, often confined to the posterior cervical region but in some cases generalized; and pain of varying severity under both costal margins and in the neck, back, and limbs. Headache without meningism has been common, but the symptom that seems to be peculiar to this infection, especially in the early stages, is vertigo. Symptoms and signs of encephalomyelitis have appeared in some patients within 48 hours of the onset, but in others the neurological complications have been delayed for as long as three weeks. Cranial nerve palsies, particularly ocular, have been common, and mild paresis of either the pyramidal or lower motor neuron type has been observed, sometimes with painful muscle spasms. Paresthesia, numbness, neuralgic pains, or anesthesia, have appeared either alone or in association with motor manifestations. Coma has not been observed, but a state of drowsiness has been relatively common.

Tenderness of the lymph nodes has been accompanied in some patients by extreme tenderness in the region of the liver and over the spleen. Liver enlargement has been definite, but tenderness has made it difficult to determine the size of the spleen. Even when the infection has been severe, fever has been slight or absent. In certain patients there has been a disproportionate tachycardia, sometimes persisting into convalescence. Total leukocyte counts have varied from 3,000 to 12,000 per cubic millimeter, sometimes with neutropenia and occasionally with an absolute lymphocytosis. Mononuclear cells have not been observed, but morphological changes have occurred in some lymphocytes. The Paul-Bunnell test has not been positive in a single patient. The spinal fluid has been examined in a few patients, but in none was there a pleocytosis or an increase in the protein content.

In an official account issued by the Royal Free Hospital, it is stated that it seems doubtful that this is an outbreak of infectious mononucleosis, for, though the neurological complications encountered have been described in reports of the disease, they were exceptional in other epidemics whereas in the present epidemic they are almost the rule. Furthermore, laboratory tests have failed to support the original diagnosis. On the other hand, in the epidemic variant of infectious mononucleosis hematological and serologic changes typical of this disease are not constant. The high infectivity, the prominence of visceral manifestations, the frequency of sensory neurological signs combined with the predominantly benign course make a diagnosis of poliomyelitis most unlikely. The studies in progress may establish that the infection is due to a known virus or its variants, but it is possible that a new virus is involved.

Caring for the Elderly in Scotland.—In an address to the annual general meeting of the Edinburgh Council of Social Service, Mr. H. R. Smith, Secretary of the Department of Health for Scotland, outlined some of the work that was being done in Scotland for the care of the elderly under the National Health Service. The home nursing service, which all local health authorities are required to provide free of charge, was responsible for 2,915,000 visits in 1954, covering 161,000 patients. About a third of these patients were older people. Under the National Health Service local health authorities can provide domestic help for elderly people, not in need of nursing but requiring more care and attention than they can provide for themselves. At the end of 1954, local authorities employed 780 full-time and 3,200 part-time domestic workers who were called to 18,600 households, and in nearly half of these older people were living. One local authority has provided a clinic to which elderly people, after consultation where desirable with their physician (or sometimes at his suggestion), can go for a special medical examination. Valuable work is also being done by voluntary agencies. There are, for instance, about 200 welfare committees for older people in Scotland that arrange for outings, concerts, home visits, and clubs for the elderly. These organizations have also initiated and expanded meal services for older people, and there are now 47 such services in Scotland. Of the 85 chiropody services now in operation, 74 are provided by voluntary agencies. For older people who can no longer stay in their homes, there are 1,800 places in small modern homes, with another 600 in prospect in homes that are being built or planned, as compared with about 4,500 remaining in the older and larger establishments. These are all provided by local authorities. In addition, just over 4,000 persons are accommodated in voluntary homes for older people.

One of the recent major developments has been the opening of a geriatric unit of 70 beds at Stobhill Hospital, Glasgow. In its first nine months 484 patients were admitted and 124 were discharged home. In the geriatric unit at Maryfield, Dundee, which has now been in operation for several years, results indicate that about 45% of the patients admitted can be restored to a condition in which they can live outside the hospital, either in their own homes or in a hostel. Since the family physician is busy, he often learns of a particular patient only when it is too late for preventive work. He should, however, be not only an agent for treating disease but also the man to whom a patient or a patient's relatives can turn for help and advice in obtaining any of the health, welfare, or voluntary services that can be provided. Coordination is necessary so that everybody who plays any part in the health and welfare services may know what facilities are available in any other part of the field. Although 25 local coordinating committees have been set up in Scotland, made up of representatives of the hospital service, local authorities, and executive councils, it might be better to form small *ad hoc* committees to meet specific problems as they arise. From such committees general practitioners could tell where need existed and learn what help was available.

Accidents in Schools.—A survey of accidents occurring in the schools of Buckinghamshire during a two year period has been made by J. J. A. Reid (*Medical Officer* 94:107, 1955). In a school population of 25,939 boys and 24,065 girls, aged 5 to 15 years, there were during this period 954 accidents, involving 618 boys and 336 girls. This gives an annual accident rate of 1.2% for boys and 0.7% for girls. The rates for both boys and girls showed a general upward trend from the age of entering to that of leaving school. Throughout the entire period, at all ages, the accident rates for boys were substantially higher than those for girls. About 40% of the accidents occurred in the playground. Accidents during sports and physical education classes accounted for 25% of all accidents to boys and 33% of all accidents to girls; accidents in classrooms accounted for 20.5% of accidents to boys and 15.8% of those to girls; and accidents in corridors, cloakrooms, bathrooms, and on stairs accounted for 5.7% of accidents to boys and 8.6% of those to girls. Superficial abrasions and contusions were incurred by 41% of the boys and 40.2% of the girls; lacerations were incurred by 22.6% of the boys and 11% of the girls; fractures, mostly of the arms and legs, were incurred by 18.1% of the boys and 19.9% of the girls; muscle, tendon, and joint injuries were incurred by 9.4% of the boys and 17.3% of the girls; foreign bodies were responsible for 2.6% of the accidents to boys and 3% of those to girls; minor concussions occurred in 1.6% of the boys and 0.9% of the girls; and the rest included dental accidents and burns and scalds. There was only one fatal accident; a boy of 14 sustained an apparently trivial accident in the gymnasium, for which he appeared to be none the worse. He died during the night. The primary cause of death was repeated subdural hemorrhages associated with an old cyst of the arachnoid membrane and an abnormally thin skull. The only other serious injury was a ruptured liver sustained by a boy who fell while sliding down bannisters. Information concerning contributory factors was available in 171 accidents: disobedience to rules (6.8% of accidents in boys and 3.6% of those in girls); rough play or behavior (5.2% of accidents in boys and 2.1% of those in girls); structural defects (3.7% of accidents in boys and 3.6% of those in girls); accidents involving doors (2.4% of accidents in boys and 4.2% of those in girls); and accidents secondary to illness (1.1% of accidents in boys and 2.1% of those in girls). Of the last group, two were caused by falls during epileptic seizures and several were due to fainting. In noting that 22 of these accidents occurred in school gardens, the question is raised as to whether it would not be a wise policy to immunize all school children routinely with tetanus toxoid, because children from 5 to 14 years of age have the highest civilian death rate from tetanus. The most practical way of dealing with this situation might be the administration of a combined diphtheria-pertussis-tetanus injection at child welfare clinics, with subsequent booster doses at school.

Employment of the Cardiac Patient.—The British Council for Rehabilitation has issued a report on the employment of patients with heart disease. In children unwarranted invalidism was found to be common. Half of the children in whom abnormal cardiac signs were reported in school medical examinations were shown to be healthy in a subsequent special examination. It is therefore recommended that each child in whom an abnormal cardiac physical sign is found be reexamined by a physician specially trained in cardiology. Whenever the child is found to be healthy and the presenting sign to be innocent, such information should be conveyed emphatically to the parents, the school medical officer, and the child's family physician. As soon as heart disease is diagnosed, steps must be taken to prevent the patient from growing into a social derelict. It is important that he should not become introspective and resentful but that he should be helped to find an outlet for his energy; his creative powers should be stimulated in a way that is within his physical range of activity so as not to isolate him from others of his own age. Strong exception is taken to the view that the ambulant child with heart disease is suitable for transfer to a special school or hospital, where physically defective children are cared for. Most children with valvular heart disease should attend ordinary schools. Banks, insurance offices, and the post office have been reluctant to employ persons with heart disease, whose disabilities demand a sedentary occupation, because of the danger of their imposing an undue burden on the insurance and retirement schemes. The committee urges that the Ministry of Labor in conjunction with the Ministry of Health propound a scheme that will provide pension facilities for this deserving group in order to prevent their entry, as is now the rule, into occupations entailing heavy manual labor, where a preliminary medical examination is not required. In the case of heart disease in the elderly, the cardiologist's main function is to make an accurate diagnosis in order to avoid unwarranted invalidism, especially in those patients in whom pain in the chest is shown to arise outside the heart, in those with an elevated blood pressure in whom special tests exclude true hypertension, in those with a displaced apex in whom there is no cardiac enlargement, and in those with murmurs that are immaterial, if not innocent.

Mass Radiography.—In the past mass miniature radiography has been used in surveys of students, factory and office workers, or volunteers, in the hope of discovering tuberculosis and other chest lesions. This is now considered wasteful, and the Medical Research Council has suggested that mass miniature radiography would be used more economically and effectively by limiting it to patients referred by general practitioners and surveys of areas where tuberculosis is unduly prevalent. For the last two years the Northern Ireland Tuberculosis Authority has encouraged general practitioners to refer persons over 14 years of age to the mass miniature radiography center in Belfast without previous appointment. Barr and Ritchie have surveyed results of the scheme (*Tubercle* 36:228, 1955). After the reading of the miniature films a letter is sent within 48 hours to the practitioners concerned stating whether the radiograph is satisfactory or recommending further examination. Patients with active tuberculosis are referred immediately to the local chest clinic and those whose disease is inactive to a general practitioner. Other patients are referred to the appropriate specialist (e. g., a thoracic surgeon). Since the inception of the scheme, 15,917 persons have been radiographed. Over half the examinees were in the age group of 15 to 34 years; few were over 60 or under 15 years. The area covered included 500,000 persons, and about 15 in every 1,000 were x-rayed annually. In the past two years 347 patients were diagnosed as having active postprimary tuberculosis—all but 5 for the first time. This represents 2.2% of the total referred for examination and is much higher than the percentage for other groups surveyed by mass miniature radiography. In organized groups in the area this was 0.34% and in individual volunteers 0.71%. The percentage of nontuberculous chest lesions found in the patients referred by general practitioners, namely 18%, was greater than in either of the organized groups (6.5%) or in individual volunteers (11.2%). The lesions included chronic bronchitis, pneumonitis, bronchiectasis, neoplasms, and cardiovascular lesions. Although the numbers discovered were relatively small (0.45% of the men and 0.2% of the women), it was thought that mass radiography could play an important role in the diagnosis of lung carcinoma. The scheme has stimulated the general practitioner to become more interested in case finding. The scheme saves a patient from being sent to a chest clinic unless a lung lesion has been diagnosed, and it speeds diagnosis.

Fomenting of Lawsuits.—According to the annual report of the Medical Defense Union, the working of the Legal Aid Scheme continues to foment lawsuits and to encourage allegations, often baseless, against members of the medical and dental professions. These would not have been made if their authors had known they might have to pay the court costs. These cases cast heavy burdens on the union's finances. Although the injustices to which the scheme not infrequently leads have been admitted and even deplored by the judiciary, there seems no prospect of any effective redress. For example, a general practitioner was asked to treat an elderly man who had sustained an injury to his back. The physician injected 2% Novutox at the site of the injury and was about to withdraw the needle when it broke off. He was unable to extract the retained fragment and sent the patient to a hospital where, on the following day, the retained part of the needle was removed. In due course the patient sued the physician alleging negligence in the administration of the injection and claiming damages for such items as bus fares to and from hospital, new pajamas and a dressing gown worn in hospital, and loss of wages. The total damage claim was $1,220. When the case came to trial the plaintiff admitted that he had not lost any wages because of the breaking of the needle but because he had refused to accept the alternative post that his employers had offered him on his return to work. He also admitted that his claims for certain other expenses could not be justified and that, far from having been caused pain and suffering, he had rather enjoyed his short stay in the hospital. He offered no medical evidence but called a metallurgist who said the problem was a medical one and not a metallurgical one. In giving judgment for the defendant the judge described the case as an abuse of the Legal Aid Scheme. He found that there had been no negligence on the part of the physician and said that even if the plaintiff had been able to satisfy him on this score the damages to which he would have been entitled amounted to only 50 cents. As the plaintiff was an assisted person of small means, no order for court costs was made.

Culpable Contraceptive Cap.—The annual report of the Medical Defense Union also reports a suit brought against a public health officer who, as part of her duties, attended a birth control clinic. She had fitted a patient with a contraceptive cap and demonstrated and taught its use. Many months afterward the patient, who had been complaining of various symptoms, was x-rayed, and the roentgenogram suggested the presence of a cap covering the cervix. She was referred to the clinic where the cap was removed. It had evidently been in position for a long time. The patient said that, being unaware of its presence, she had for a time been using another. She expressed some exasperation that more recently she and her husband had been hoping to have a baby but had been unsuccessful. An action was brought against the physician based on the allegation that the cap had been left in position after its use had been demonstrated to the patient. This was entirely contrary to the practice of the physician and of the clinic, and a check on the appliances used in the clinic did not reveal any as being missing. The patient thereupon abandoned her suit.

Sanatoriums.—According to Dr. Peter Stradling (*Tubercle* 36:150, 1955) the admission of a patient to a sanatorium has no more beneficial effect on the course of his tuberculosis than has treatment by an adequate clinic where domiciliary, hospital, and outpatient treatment are flexibly integrated according to need. This conclusion is based on a five year follow-up of the 64 patients with newly diagnosed pulmonary tuberculosis who were first seen at his clinic between June, 1948, and June, 1949, a time when there was an acute shortage of sanatorium beds. To compensate for this shortage, these patients were admitted in quick succession to clinic beds in Hammersmith Hospital for initiation of collapse therapy. This was followed by long periods of domiciliary maintenance, and some patients were finally transferred to sanatoriums or rehabilitation centers. The follow-up results showed that quiescence was obtained without active treatment in a sanatorium in 47 of the 64 patients. Sanatorium admission severely breaks the continuity of treatment, and the differences of opinion and changes of treatment likely to be inflicted on the transferred patient only bewilder him, undermine his confidence, and make him skeptical of medical opinion and care. All this is avoided by clinic management where close liaison between patient, physician, hospital, clinic, and the sufferer's family encourage a sound evaluation of needs based on knowledge of all the available factors. Another disadvantage of sanatoriums is the fact that they are usually located in the country many miles from the patient's home, which makes visiting difficult and which leads to a sense of isolation. Furthermore, it aggravates the sense of stigma that many patients suffer.

Shotgun Wounds.—Sir Heneage Ogilvie (*Practitioner* 175:304, 1955) divides shotgun wounds into close-range and long-range injuries. In the former, which usually happen at the end of a day's shooting and are often accidentally self-inflicted, the whole charge, including the wad, enters the tissues as a compact mass. These are lacerated and contaminated wounds that must be treated as soon as possible by excision and drainage. Excision implies the removal of all dead and damaged tissues, all dirt, and all foreign matter down to the depths of the wound. Bones may be broken, but they are seldom comminuted. The fracture ends should be cleansed mechanically, the injured part immobilized, and parenteral administration of chemotherapy instituted. It is unwise to attempt primary suture of any shotgun wound, but early secondary closure is essential in order to minimize scar tissue and secure the best possible function. The usual long-range injury consists of a number of scattered holes. Apart from the eye, where penetration may be deep, the pellets are usually stopped by the fascia. They may lodge in the skin over the abdominal wall and penetrate a short distance into the muscles, but they do not enter the peritoneal cavity. These multiple peppered wounds require no treatment beyond cleaning the skin, applying a sterile protective dressing, and administering chemotherapy.

Prevention of Coronary Disease.—In a public address, Sir Macfarlane Burnett, director of Melbourne's Walter and Eliza Hall Institute for Medical Research, suggested a study of identical twins as a line of approach to coronary disease. Although coronary disease has been associated with worry, diet, and excessive smoking, inherited constitution as an important factor could not be excluded. If one identical twin could be found with heart disease and the other were healthy, it could be assumed that environment was the determining factor. If the causative environmental factors were known, coronary disease might be prevented. It is not yet clear whether the tension of modern life or the smoking that is indulged in to ease that tension is an important factor in the production of coronary disease.

FRANCE

New Angiographic Technique.—Angiography has heretofore been only regional. P. and M. Viallet and their co-workers in Algeria have devised a new system of angiography by means of a single intravenous injection according to their report at a meeting of the Medical Society of Paris Hospitals in March. The patient is first given antihistaminics, barbiturates, and ganglioplegics. An intravenous injection of 3-acetyl-amino-2-4-6-sodium triiodobenzoate is then given, using a vein of the cubital fossa in adults and the external jugular vein in children. In the same syringe, surmounting the contrast medium through a difference in density, physiological saline solution is injected to flush out the veins. The combined injection must be given quickly (1 to 2.5 seconds). The segmental venous hypertension caused by the rapid injection momentarily blocks the local venous circulation, thus helping to prevent the dilution of the contrast medium. The authors have performed 320 angiocardiographies by this method with no significant complications. A generalized thermesthesia is usually observed during the injection. The authors apply the same method to the study of the thoraco-cervico-cephalic region. They thus avoid the use of three successive venipunctures. They have been able by this means to obtain a simultaneous cervical, cranial, and facial study including the collateral circulation. This permits a reasonable surgical plan for operations and a more accurate postoperative prognosis. In the same manner, the authors have studied the thoraco-abdomino-pelvic circulations. They avoid by this method the necessity of giving a general anesthetic and the acute pain associated with intra-arterial injections.

Effects of Hormonotherapy.—At the meeting of the Medical Society of Paris Hospitals on May 6, P. Mozziconacci and his co-workers reported their observations on 57 children between the ages of 18 months and 18 years who were treated with corticotropin and/or cortisone; 43 or 77.3% have had minor accidents and 2 or 3.5% have had serious accidents. Most of these accidents occurred in patients with clinical signs of hypercorticalism. The intensity and the duration of the treatment and the familial as well as personal neuropsychological antecedents are predisposing factors. These antecedents, in view of the seriousness of the disease for which the hormones were given and the relative mildness of the accidents incurred, do not constitute a contraindication to the hormonotherapy. The accidents that are more apt to occur at the beginning and at the end of treatment can be explained by the rapid and extensive variations in metabolism. The occurrence of signs of hypercorticalism and anxiety or insomnia might indicate the need to lower the dose or to discontinue treatments.

Colitis Treated by Hydrocortisone Enemas.—At the meeting of the Medical Society of Paris Hospitals on May 20, P. L. Drouet and his co-workers in Nancy reported the treatment of hemorrhagic rectocolitis with a daily retention enema containing hydrocortisone. The dose was 25 mg. for the first 15 days. After a rest of eight days, 50 mg. per day was given in the same way supplemented by 25 mg. given orally twice a day. Even larger doses may be given rectally. When the symptoms have cleared up the enemas are stopped but the oral doses are continued. The results have been excellent. Proctoscopy showed complete healing of the rectal mucosa. Although the cure has been maintained for several months, it is too soon to tell whether or not the disease will recur.

INDIA

Rauwolfia Serpentina.—At the Medical College of Bombay, Lewis and Gaitonde have studied the activity and toxicity of Rauwolfia serpentina. After the isolation of five active alkaloids from this plant, various fractions have been studied and it has been found that the amount of alkaloid contained in a particular extract depends largely on its source. Biological and chemical methods of standardization have been attempted on the crude extracts, but, because some of the alkaloids have a marked vasodilator action, it is necessary to assess both its central and its peripheral action. The peripheral action is estimated by recording the fall in blood pressure in cats with a transsected spinal cord that also receive a continuous infusion of arterenol (nor-epinephrine). The central sedative activity is estimated from the L.D.$_{50}$ for albino rats. Sedative properties are present in both the total and alcoholic extracts, while the residue after removal of ajmaline and serpentine is higher in sedative properties. The hypertension induced by giving epinephrine and ephedrine is lowered by total alkaloids and by serpentine and to a lesser extent by ajmaline. Clinical trials suggest that the central action is of greater importance than the vasodilator action. The authors draw attention to several important limitations of the methods they have used for the assay of peripheral activity and the measurement of the L.D.$_{50}$ and throw some doubt on the assumption that the latter is correlated with central depressor action. Arterenol was infused at a fixed rate in order to maintain the raised blood pressure, and aqueous extracts of R. serpentina obtained from four different sources were used for comparison. Besides this, four partially purified fractions (serpentine, crude oleoresin, and two ajmaline fractions obtained from different sources) were tested. The central action was studied by intraperitoneal injections of various preparations in albino rats varying in weight from 50 to 100 gm. The L.D.$_{50}$ was calculated for each extract and fraction using two groups of 10 animals each at a dose level above and below L.D.$_{50}$ The authors concluded that reserpine has a far greater toxicity or central depressant action than any of the other fractions but hardly any demonstrable immediate peripheral action. Serpentine has the lowest toxicity and central depressant action but a very high peripheral effect. Ajmaline stands between the two as regards its central and peripheral action.

Melanoma.—Agarwal and Ahuja in the *Indian Journal of Medical Research* (43:2 [April] 1955) reported a case of intraocular melanoma arising from the conjunctiva. The patient, a 35-year-old man, complained of a gradually increasing ulcerating mass in the left eye of six months' duration. This growth had destroyed the left eyeball and had involved the temporal margin of the orbit. The microscopic appearance of the tissue showed wide variations. There was marked proliferation of the epithelium overlying the tumor. Some of the epithelial processes extending into the underlying mass had bulbous ends and looked as if they had left a few cell-rests behind. One block showed a single row of proliferated basal cells, with vacuolated cytoplasm and small pyknotic nuclei penetrating the subjacent stroma, and another block showed a whole column of such cells penetrating downward and disappearing into melanoblasts and melanophores. These basal cells appeared to be the origin of the melanotic growth. The stroma consisted mainly of argyrophilic reticulin fibers with a few collagen bundles interspersed in between and many chronic inflammatory cells, chiefly small round cells and plasma cells. In between these cells a number of pigment-laden histiocytes and other groups of large cells containing melanin were seen. The morphology and arrangement of these cells showed marked variation, being epithelial, transitional, or spindle-shaped. The epithelial cells similarly showed polymorphism. The tumor cells are commonly believed to arise from the basal cells over a segment of scleral conjunctiva, and this is supported by their histological appearance.

Tuberculin Testing.—J. P. Karan, of the Tuberculosis Training Center in Patna, has given a tuberculin test to about 631 children under 6 years of age. The results were read on the fourth day after the test, at which time only 62.9% reported for a reading. About 37.9% of the group reporting had positive reactions. A progressive increase in the percentage of tuberculin positivity was seen with advancing age, the maximum being noticed in the age group 4 to 5. Demonstrable lesions were maximal in the age group 2 to 3. Sex had little effect on the percentage of positive reactions or the development of disease. A positive reaction does not necessarily mean active disease even in infancy and childhood, but, if there are symptoms referable to the chest or of a toxic nature, a thorough investigation of these positive reactors should be made. The size of tuberculin reaction is not helpful in diagnosing tuberculosis.

ISRAEL

Hypothalamic Obesity.—In the course of his studies on endocrinologic disturbances, Hermann Zondek (Bikur Holim Hospital, Jerusalem) found a new type of hypothalamic obesity in adolescents, called by him "Z-type." The underlying mechanism of hypothalamic obesity has been clarified by recent experimental investigations. Bilateral electrolytic lesions in ventromedial nuclei cause overfeeding and adiposity. It appears that the hypothalamic feeding centers can be affected, and their balance disturbed, by chemical, thermal, infectious, toxic, mechanical, and psychic factors. To the group with hypothalamic obesity belong patients with the so-called water-salt obesity, most patients with adiposogenital dystrophy, those with pseudo-Froehlich syndrome (genuine Froehlich types without anatomic substrate), and some patients with adrenal cortical hyperfunction (Cushing's syndrome). Zondek's Z-type represents in its symptoms an intermediate stage between the form of pseudo-Froehlich syndrome and adrenal cortical hyperfunction. It includes the following signs and symptoms: voracious, often uncontrollable, hunger and thirst; Cushing's syndrome-like distribution of the adipose tissue, with moon face, purple cutaneous striae, diffuse purple coloring of the skin, especially over the nates and legs; and signs of vasoconstriction (retinal vessels, limbic capillaries, and tibial arteries). Vertical growth is variable, being in most patients advanced for the age but in others normal or even subnormal. Gonadal function and development may be normal or retarded in comparison with chronological age. 17-Ketosteroid excretion is not characteristic and may be low, as in adiposogenital dystrophy, normal, or high, as in adrenal cortical hyperfunction. Metabolic functions (carbohydrate, cholesterol, water, salt, and basal metabolism) as well as vascular functions (pulse rate and blood pressure) frequently show the instability characteristic of hypothalamic disorders. The prognosis in individual patients is uncertain. Patients with type Z obesity can maintain a stationary weight through adult life, can spontaneously revert to normal, or, very rarely, can come to show typical signs of adrenal cortical hyperfunction. Such forms of adrenal cortical hyperfunction are as a rule of benign nature. Among the case reports published in *Harefuah* (49:23, 1955) is that of a 54-year-old woman who during the first period of observation displayed the symptoms of frank adrenal cortical hyperfunction (weight, 244 lb. [110.7 kg.], typical distribution of the adipose tissue with bright red moon face, purple cutaneous striae, hypertension, insulin-resistant diabetes, and mild hirsutism), associated with voracious hunger and thirst. At about the same time neurological abnormalities suggestive of a cerebellopontine lesion and marked bitemporal hemianopsia developed. During a second phase the patient lost her appetite and 81 lb. (36.7 kg.), had a low blood pressure and metabolic rate, and during a third phase again showed ravenous hunger and thirst, a weight gain of about 88 lb. (39.9 kg.), a high metabolic rate, high blood pressure, and latent diabetes mellitus. A tendency toward water and salt retention was present throughout the whole period of observation. The metabolic, vascular, ocular, and neurological manifestations of the first stage disappeared following dehydrative measures. The response to dehydrative therapy suggested cerebral edema—presumably, in view of the selection and nature of the neurological manifestations, a hydrative meningitis cystica serosa of the cerebellopontine angle—as the underlying cause. The instability of the disease process is illustrated by the spontaneous development and regression of the morbid phenomena of the second phase and by the likewise spontaneous occurrence of the opposite phenomena of the third.

Occult Uterine Bleeding.—At the clinical and experimental research meeting of the Hebrew University Medical School in July, Bromberg and Bercovici described a practical method for the detection of minimal uterine bleeding by a modified benzidine test. They demonstrated the presence of occult midmenstrual bleeding in 90% of women during the reproductive period. This unexpected high incidence of midmenstrual bleeding reported in normal women may be explained by the special technique used in demonstrating the presence of minimal amounts of blood in the vagina. This method of blood detection seems to be more reliable than the vaginal smears, since red blood cells may be hemolysed in the vagina by bacteria, lysins of exfoliated cells, and the low vaginal pH. Benzidine tests yield positive results in low concentrations of erythrocytes, which are frequently missed by microscopic examinations. It is believed that the appearance of intermenstrual occult blood is closely related to ovulation. It may be considered as a more common and milder equivalent of the frank midmenstrual bleeding observed in some women and generally accepted as a sign of ovulation. The connection between ovulation and bleeding is proved by the correlative study of endometrial biopsy specimens, benzidine blood test graphs, findings at laparotomies, and controlled conceptions. The results obtained indicate that occult bleeding appears early in the postovulatory phase, most often on the 15th day of the cycle. The phenomenon described resembles the midcycle hemorrhage reported by Hartmann in monkeys and recalls the estrus phenomenon in other mammalian species, sometimes associated with genital bleeding.

Elution of Isoagglutinins.—The existence of A, B, O, and AB groups in thrombocytes, corresponding to those groups in red blood cells, has been reported by Gurevitch and Nelken of the Hebrew University Medical School, Jerusalem. The identity of the A and B antigens in platelets and red blood cells has been proved by platelet agglutination with antiserums, cross adsorption of isoagglutinins with thrombocytes and erythrocytes, inhibition of isoagglutinins with saliva from secretors, and neutralization of antiserums with A and B group specific substances. The authors' last studies dealt with investigation on eluates of antiserums adsorbed with large amounts of platelets, using the Landsteiner and Miller technique. To a platelet sediment prepared from 40 to 50 ml. of blood, 0.5 ml. of isotonic sodium chloride solution was added and the tube shaken at about 6 C to obtain a homogeneous concentrate of platelets. This suspension was added to 0.7 ml. of a high-titered antiserum in a siliconed tube and left for 15 to 20 hours at 6 C. After centrifugation, the adsorbed serum was pipetted off and the platelet sediment washed in isotonic sodium chloride solution to ensure removal of traces of serum. The washed platelet sediment was resuspended in 0.4 ml. of isotonic sodium chloride solution and shaken in a water bath at 56 C for 5 minutes. It was then centrifuged at 56 C for 1 minute and the supernatant eluate immediately removed. Using the above technique, eluates of 15 different A, B, and O serums were prepared and examined for agglutinating capacity against erythrocytes and thrombocytes.

United States Surgeons Confer with Israel Physicians.—A delegation of seven surgeons from the United States who are touring the world on a mission for the International College of Surgeons arrived in Israel recently at the invitation of the Israel section of the college and the Ministry of Health. They participated in a scientific conference held in Jerusalem under the joint auspices of the Hebrew University-Hadassah Medical School and the Israel section of the college. The visiting surgeons included Dr. Max Thorek of Chicago, Dr. Henry W. Meyerding of Rochester, Minn., Dr. Moses Behrend of Philadelphia, Dr. Nolie Mumey of Denver, Dr. W. C. Spiedel of Seattle, Dr. S. J. Carnazzo of Omaha, and Dr. E. Vovan.

Food Technology.—The importance of the new department of food technology at the Technion, the Israel institute of technology, was described by Prof. Joseph Braverman, head of the department. Previously, students wishing to take up this subject had to go abroad to study. Students in the Technion's new division of biotechnology will spend their first two years in the faculty of chemical technology and thereafter will specialize in basic processes of chemical engineering, food technology, quality testing of food, and other such subjects. The number of qualified technologists now working in Israel's food industries is about 100, and the new department plans to graduate about 10 trained food chemists annually.

Number of Medical Students Increased.—The number of students in the two final years at the Hebrew University-Hadassah Medical School is to be increased from 50 to 75. The additional 25 will comprise Israeli students returning from abroad to complete their medical studies in Jerusalem. The change is to be introduced in the academic year 1955-1956, but the classes have already been augmented by 16 Israelis who returned from the United States before the opening of the academic year.

NEW ZEALAND

Anniversary of Otago Medical School.—At a meeting of the graduates of Otago Medical School at Dunedin in February, the dean, Sir Charles Hercus, reviewed (*New Zealand M. J.* 54:120, 1955) the vicissitudes through which the school has passed. This was the second medical school to be established in Australasia, the University of Melbourne having opened its medical school in 1864. Starting with one professor and 2 students in 1875, the school has at present 9 professors, 3 assistant professors, 100 lecturers, over 100 part-time clinical teachers, and 528 students. The school also houses some 47 professorial and technical research workers for the Medical Research Council, the British Empire Cancer Campaign, the Hugh Adams Research Fund, and the Travis Trust.

Postoperative Transient Aldosteronism.—At the same meeting Dr. J. G. Llaurado reported (*Proc. Univ. Otago M. School* 33:19, 1955) on the excretion of the electrolyte-regulating corticoid after surgical trauma. The starting point of this research was the finding that in the first 24 hour collection of urine from a patient after an operation, there is an increased amount of this corticoid, associated with an inversion of the sodium-potassium ratio in the patient's urine. Believing that this corticoid is actually aldosterone, Dr. Llaurado studied 10 patients, subjected to various operations of diverse degrees of severity. In this group increased aldosterone activity (up to eight times the daily level before operation) was found in the urine of patients for several days after operation, during which the sodium-potassium ratio in the urine remained significantly reduced. There was a linear relationship between the aldosterone activity and the logarithm of the sodium-potassium ratio in the urine of patients before and after operation. Aldosterone activity in the urine receded to the preoperative level when the sodium-potassium ratio returned to its preoperative value. The clinical implication of this study seems to be that the changes in the level of aldosterone excretion, assuming that increased excretion means overproduction, are sufficient to explain the striking changes in the sodium and potassium metabolism after operation, although other factors such as protoplasmic breakdown may also account for minor losses. It was suggested that the name postoperative transient aldosteronism should be applied to such a metabolic phenomenon, since this name denotes a temporary occurrence and is consistent with the terms primary and secondary aldosteronism.

PERU

Toxicosis of Infancy.—In commemoration of the 25th anniversary of the foundation of the Peruvian Society of Pediatrics, the second Peruvian Congress of Pediatrics was held at Lima in July. Dr. C. F. Krumdieck of the National University of San Marcos said that of 12,770 infants admitted to his ward in the Children's Hospital of Lima from December, 1947, to April, 1955, 4,438 suffered from diarrhea and of these 1,350 were in a toxic state. The rest (1,214 with enterocolitis, 696 with acute dyspepsia, 266 with mild dyspepsia, and 912 with miscellaneous diseases) had only mild dehydration without significant electrolyte imbalance. Of the infants with toxicosis, only 445, or 32%, could be saved; 561 died within the first 48 hours after their admission to the hospital, mainly because they were moribund or nearly so on admission. Even so, Dr. Krumdieck believes that more infants could have been saved if the hospital had had a well-equipped service dedicated to the emergency treatment of dehydrated infants in toxic condition. Indeed a marked improvement in results has already been noted. On the other hand, most of the infants with toxicosis were poorly nourished, and this was an added factor favoring the high mortality observed. The incidence of toxicosis in infants is always much greater in the summer. Toxicosis as well as acute dyspepsia occurred much more frequently in infants over one year of age. Apart from the functional disturbances of the nervous system shown by the infants suffering from toxicosis, marked underlying anatomic lesions involving both nervous and endocrine tissue were found at autopsy in those infants who died of the condition.

Prof. Anibal Ariztía, of Santiago, Chile, said that in the last five years a marked decrease in the case fatality rate in infants with toxicosis has been obtained in his wards. He attributes this to the fact that, since 1950, emergency management of toxicity in infants has been adopted, so that as soon as the toxicosis is diagnosed specific therapy is started. This emergency therapy is handled by specially trained medical and auxiliary personnel. These successful results have been obtained despite the fact that 80% of the infants of this series were poorly nourished. Although during the last five years small doses of antibiotics have been given to most of the children with toxicosis, the author doubts that this was responsible for the good results obtained. He believes rather that the pediatrician should be cautious in the use of antibiotics because, when they are indiscriminately used, especially in babies, they may cause a severe disturbance of the intestinal flora and an increase in the diarrhea. Every effort should be made to isolate the causative organism and ascertain its drug sensitivity. The replacement of fluids and electrolytes should, if possible, be accomplished by the oral route. Fluids should never be given by vein for more than 24 hours.

Bronchopneumonia Following Measles.—At the same meeting, Dr. Carlos Bazan and his co-workers of Lima reported that, of a series of 1,159 infants suffering from contagious diseases, 337 had measles. Bronchopneumonia developed in 37. In 17 patients it was fatal. The case fatality rate increased as the infant's age diminished. Thirty-four of the infants in whom bronchopneumonia developed entered the hospital in a very poor state of nutrition. The incidence of malnutrition among the infants with bronchopneumonia was much higher than that found among those infants who did not have bronchopneumonia. It was also observed that in the poorly nourished children the measles rash tended to remain longer than usual. Apart from the classic pulmonary physical findings, fever, inspiratory dyspnea, tachycardia, anorexia, vomiting, and diarrhea were the main clinical manifestations found in the infants with bronchopneumonia. Chlortetracycline given alone or with streptomycin was the most effective drug for the control of the bronchopneumonia. Penicillin, chloramphenicol, tetracycline, and oxytetracycline were effective but to a lesser degree. Because the causative organism varies from one epidemic to another and even from patient to patient, no single drug can be recommended for routine use.

Acute Abdominal Disease.—At the same meeting, Prof. Eugenio Cienfuegos of Chile called attention to the fact that in children diverse extra-abdominal processes may simulate the clinical pattern of acute abdominal disease. The pediatrician must be aware of this in order to avoid unnecessary operations. Among such conditions rheumatic fever and pneumonia must be borne in mind. On the other hand, truly acute abdominal disease may remain undiagnosed until laparotomy reveals it to be due to intestinal parasites.

New Febrile Disease.—At the same meeting, Drs. Teodoro Taboada and Manuel Valeriano of Trujillo, Peru, described an apparently new clinical entity that they have observed with relative frequency during the last two years. Its salient clinical features are insidious onset, with slight fever, mild infection of the upper respiratory tract, and marked nervous irritability. The temperature rises to between 100 and 104 F, and hepatomegaly, splenomegaly, and discrete generalized adenopathies are detected on physical examination. Despite this the infant usually looks well. The red blood cell count ranges from 3,500,000 to 4,200,000 per cubic millimeter. There is a leukopenia, sometimes preceded by a transient, slight leukocytosis, with a differential count of 40 to 85% lymphocytes, 10 to 20% monocytes, 2 to 15% eosinophils, and 10 to 40% neutrophils. The authors believe this disease is produced by a lymphotrophic virus because the clinical findings resemble those of acute infectious lymphocytosis, infectious mononucleosis, serum hepatitis, and measles—diseases that are known to be caused by lymphotrophic viruses. None of the patients so far observed have died. Antibiotics prolong or even aggravate the disease and should be used only when intercurrent infection develops.

Congenital Cardiopathies.—Dr. Augusto Mispireta and his coworkers of the Children's Hospital of Lima at the same meeting reported that angiocardiography is the most important test for the detection of the tetralogy of Fallot and that cardiac catheterization with gasometric study is an aid to the conclusive diagnosis of persistent ductus arteriosus. In 31 of 32 children the duct was ligated, whereas, in the remaining one, section of the duct was performed. Two of the children died soon after the operation, one due to an anaphylactic reaction presumably caused by the plasma given during the operation and the other due to an intolerance of the anesthetic. In all the surviving children the clinical results have been regarded as excellent. Some have been observed for eight years following operation. Nine children with the tetralogy of Fallot underwent the Blalock operation and of these one died; this was the first child in the series. Postoperative complications were noted in only one patient in whom a hemothorax developed. Final results were good in four and fair in the remaining four. In both types of operation, antibiotics were given before and after operation.

Cortisone for Bronchitis.—At the same meeting, Dr. Alberto Steeger of Chile said that he has used cortisone as an adjuvant measure in the management of upper respiratory infections with surprisingly good results. He based this treatment on the fact that cortisone diminishes the production of inflammatory secretions and would thus prevent the obstruction of the respiratory tract. It should be given not only during the hyperergic phase of the disease but over a longer period of time whenever the intensity of the infection makes it likely that a diffuse secondary cicatricial process will develop, since cortisone also inhibits fibrosis. If cortisone is used, however, antibiotics in larger doses than usual must be prescribed to counteract the anergic effect of the hormone. If cortisone is contraindicated, antihistaminics should be given. Depressive respiratory drugs, especially opiates, must be avoided. Iodides are contraindicated because of their reflex secretory action on the bronchial mucosa.

Pulmonary Surgery in Infants.—At the same meeting, Dr. R. Matte of Chile reported a series of 138 pulmonary resections and 21 decortications. Seventy-three of the resections were performed in infants with pulmonary tuberculosis. There were eight operative deaths in this group, all of which occurred before 1954. The author believes that any infant with a primary tuberculosis that does not respond to antibiotic therapy or in which complications develop should be treated surgically. Management of the immediate postoperative period is of the utmost importance. Balls of inert plastic material were used with good results in order to prevent the displacement of the unremoved lung toward the opposite side in those patients who underwent pneumonectomy.

Lung Cysts.—At the same meeting, Dr. Simón Tisnado of Peru presented evidence to prove that most lung cysts regarded as congenital are acquired as a result of micrococcic (staphylococcic) pulmonary microabscesses (suppurative pneumonia) generally produced in the neonatal period or early in childhood. If this condition is not corrected it may lead to a pleuroparenchymal process with or without pleural empyema, or, if a bronchial fistula exists, to the formation of a pneumatocele. This latter condition may in turn lead to a pneumothorax.

SWITZERLAND

Peaceful Use of Atomic Energy.—The International Conference for the Peaceful Use of Atomic Energy in Geneva in August included a discussion of the medical problems stemming from the application of atomic energy. Switzerland has purchased an American reactor that will (1) liberate thermal energy from uranium to be used for the production of electricity in large centers, (2) produce currents of neutrons that allow the penetration of matter and the study of its structure, and (3) artificially render elements radioactive. In addition to the use of radioisotopes to determine metabolism and to diagnose and treat tumors, isotopes are now being used in plastic surgery to study revascularization in grafts; in obstetrics to localize the placental and uteroplacental vascularization; and in therapeutics to study the method of action of antibiotics. In addition to P^{32}, I^{131}, and colloidal gold, radioactive yttrium (Y^{90}) is an important therapeutic agent and has been used in the treatment of lung cancer by direct injection of particles of its oxide into the pulmonary artery. In teletherapy, a relatively new agent, radioactive cesium (Cs^{137}), has been used in England for some time. It is a fission product resulting from the combustion of uranium in a pile. Cs^{137} emits the longest gamma rays (half-life 33 years) and can serve as a source of gamma rays without having to be replaced frequently because of a decrease in activity. Already radioactive cobalt (Co^{60}) is beginning to replace roentgen rays. Prof. Tzuzuki of Japan said that blood diseases of the leukemic type continue to develop even now in survivors of the Hiroshima and Nagasaki explosions. It is difficult to ascertain the exact genetic consequences of exposure to ionizing radiations, but they do seem to constitute a significant problem. Hasterlik and Marinelli of Chicago reported the follow-up of four technicians accidently injured by reactors. They noticed changes in the leukocytes in the form of incompleteness, inclusions, and granulations. There were also temporary effects on spermatogenesis and sperm motility but none on the bone marrow, eyes, or frontal cerebral lobe function. The total daily excretion of urinary amino acids varied from 2 to 20 times (average 10 times) the normal. These qualitative and quantitative variations, occurring 12 hours after the accident, demonstrated that aminoaciduria is an early and sensitive indication of irradiation, even though no direct quantitative relationship has been found between intensity of exposure and degree of aminoaciduria.

J. F. Loutit of Harwell, England, said that malignant diseases of the blood, cancer of the skin, and cataract may result from irradiation. In animals, reduced life span and some threat to fertility have been noted. A. V. Lebedinsky of Russia studied the influence of ionizing radiation using Pavlov's method of conditioned reflexes and demonstrated a decrease in internal inhibitory mechanisms. He believes that the pathological changes occurring in the blood are due to alterations in the neuroendocrine forces that make up the general adaptation syndrome. He showed that changes appear early in the electroencephalogram, even after exposure to relatively weak doses of radiation, such as those administered during a course of treatment with P^{32}. In Russia radiotherapy is accomplished by means of a teletherapy apparatus with Co^{60}, which can give out charges of up to 400 curies. Other communications dealt with the radioactivity of air, water, and earth, which has been notably elevated in various parts of the globe during the last few years, exposing an ever-increasing portion of the world population to the harmful effects of radiation.

Dr. Sievert described the attempt made in Sweden to determine the value of natural radioactivity of various parts of that country and to measure the natural radioactivity of living things, especially men. Such studies are indispensable for correct determination later of the increase in general radioactivity. In Switzerland, a committee has recently been set up to curb undue anxiety in the population of Geneva and to study radioactivity of the atmosphere, establish its causes, and specify what dangers it entails. From determinations already made, it would seem that the radioactivity of the earth around Geneva has substantially increased since 1947. The additional radioactive substances would appear to be of atmospheric origin. If the development of atomic energy entails only a feeble artificial radioactivity that is much less than that occurring naturally, the danger can be considered to be negligible. This is not so if the radioactivity produced is equal or superior to that occurring naturally. A significant increase in the present radioactivity of the air, water, and land will probably lead to a greater frequency of natural mutations, causing an increase in the number of hereditary malformations within a few generations. A map of the radioactivity of the earth's surface is needed. The World Health Organization and the International Labor Organization will collaborate in this work.

Fight Against Bovine Tuberculosis.—At the end of 1954, 68.2% of the 162,000 herds in Switzerland were free from tuberculosis. Application of new legislation is expected to eradicate the bovine form of the disease completely by 1958. Prof. G. Fluckiger, director of the Federal Veterinary Office in Bern, estimates that the annual loss caused by bovine tuberculosis is 20 million Swiss francs. Formerly, in Switzerland, 8 to 10% of cases of human tuberculosis were caused by Mycobacterium tuberculosis bovis. It is estimated that the loss to the Swiss economy caused by human tuberculosis varies between 130 and 150 million Swiss francs a year (compared with 780,000 francs lost as a result of bovine brucellosis). Human tuberculosis of the bovine type no longer exists in regions where tuberculosis has been systematically eliminated in the herds, and thus, in the future, a saving of about 12,500,000 francs can be expected in the expenses of the campaign against tuberculosis in human beings. Up to the end of 1954, about 200,000 head of tuberculous cattle were slaughtered. Since the indemnity for each animal that must be eliminated is no more than 80% of its value, the loss to owners of livestock was about 40 million Swiss francs.

Hematological Changes in Gastric Cancer.—While the classic descriptions of gastric cancer include anemia, leukocytosis, and polynucleosis, frequently one or more of these are not present. J. Gelband and his co-workers (*Helvet. med. acta* **22**:156, 1955) studied the hematological changes accompanying gastric cancer in 450 hospitalized patients (257 men and 193 women). There were 444 carcinomas and 6 primary mesenchymal tumors of the stomach. In 335 instances, the diagnosis was verified at autopsy or operation. More often than not there is no reduction of hemoglobin level or there is a discrete anemia, hardly greater than that seen in most subjects past 45 years of age. Pronounced anemia is the exception in gastric cancer. Furthermore, anemia in gastric cancer is less often hypochromic than was believed. The colorimetric index was more than one in 25% of these patients. Less than 18% had an index of less than 0.8. Leukocytosis is less common than was believed, but polynucleosis is the commonest hematological anomaly in cancer of the stomach.

TURKEY

Congenital Osseous Polydystrophy.—In the *Bulletin of Istanbul University Medical Faculty* (vol. 14, no. 1), Prof. I. H. Alantar reported a case of eccentro-osteochondrodysplasia in a 5-year-old boy. The first of his four siblings lived only four days; the second died of miliary tuberculosis; the third, a premature birth, was stillborn; and the fourth died soon after birth. Other members of this family had no somatic abnormalities, but an uncle is undersized. When the patient was 8 months old, he was still unable to move his limbs and he was treated for rickets without benefit. He began moving his limbs when well over a year old. His first attempt at walking was when he was two, and only when he was three was he able to walk slowly and then with difficulty. When he was between 18 months and 2 years of age there was complete arrest of development. On admission he weighed 8,000 gm. (17.6 lb.) and measured 70 cm. (2 ft. 3.6 in.), the normal length of a 10-month-old child; his fontanelles were closed; he had the flattened head of one with rickets; and there was a mild prognathism. He had an intelligent face and answered questions sensibly. There was marked hypotonia. His fingers were short, and his wrists were seemingly without bone. He could easily touch the back of his head with his feet. He had a swaying gait and propped his hands on his knees to prevent falling. Rachitic scoliosis was marked. His extremities were long in relation to his body, and there was bilateral genu valgum. His feet were unusually soft and flat, and he had bilateral dislocation of the hip. He had a few carious teeth; his larynx was underdeveloped; and he had ectopic testes. He had a symmetric rachitic pelvis and deformed extremities. His head was normally formed but had the measurements of the head of a 12-month-old child.

His Pirquet test and serologic tests for syphilis were negative. A roentgenogram showed normal fontanelle sutures, a large hypophysis, and a large sella turcica. The head of the humerus was rarified and partly destroyed; the calcification of the radius, ulna, and the metacarpal phalanges was that of a newborn child. The head and greater trochanter of the femur and the pelvis were underdeveloped, and the acetabulum was deformed. The lower epiphysis of the femur was irregular and contained little calcium. The metatarsal phalanges had the structure of those of a 3-month-old child. There was dorsal and dorsolumbar scoliosis. The vertebral bodies were flattened. In the region of the sternum an ossiferous protuberance was seen. The lower ribs were shovel-shaped and very thin. The patient had normal intelligence. Although he was treated with ultraviolet light, vitamin D_2, and Anteron (a hormone), there was no change in his condition.

Hypochromic Anemia.—In *Klinik* (vol. 9, no. 6) Demirag and Cura reported the results of intravenous iron therapy in 13 children with hypochromic anemia. The patients were 1 to 8 years old. On admission their erythrocyte counts were 1,200,000 to 3,400,000 per cubic millimeter; their leukocyte counts were 2,300 to 5,600 per cubic millimeter; their hemoglobin levels were 2.9 to 6.0 gm. per 100 cc.; their reticulocyte counts were 0.5 to 1.3%; and their hematocrits were 8 to 26. They received a daily intravenous injection of Ferronascine (ferri-dia-dioxy-B1 B dimethyl sodium butyrate) containing 20 mg. of iron. On admission the erythrocyte count of one patient, who had had malaria for two years, was 2,700,000 per cubic millimeter. After six weeks of treatment it was 4,100,000; hemoglobin level rose from 3.2 to 9.7 gm. per 100 cc.; reticulocyte count fell from 4.5 to 2.6%; and the hematocrit increased from 29 to 32. The erythrocyte count of another patient with malnutrition was 3,700,000 per cubic millimeter on admission, and after treatment for five weeks it was 4,800,000; hemoglobin level rose from 5.9 to 9.7 gm. per 100 cc.; reticulocyte count increased from 1 to 14%; and hematocrit increased from 10 to 27. Within 25 days the average increase in erythrocyte count was 1 to 2 million and in hemoglobin level 3 to 4 gm. per 100 cc. Ferronascine did not greatly affect the leukocyte count. In most of the patients it was from 5,400 to 7,600 per cubic millimeter following treatment. Ferronascine was well tolerated, and no untoward side-effects were observed.

CORRESPONDENCE

COBALT AND THYROID FUNCTION

To the Editor:—We wish to take issue with some of the conclusions in the articles concerning the effects of cobalt on thyroid function that appeared in The Journal of Aug. 13, 1955, pages 1347 to 1357. In addition, we wish to describe further experiences since our observations (*J. A. M. A.* 157:117-121 [Jan. 8] 1955) that led us to conclude that cobalt is a goitrogen in man. Our reasons for so concluding are worthy of emphasis. 1. Hyperplastic goiters and hypothyroidism were observed to develop during administration of cobalt. 2. Tests of thyroid function showed evidence of marked suppression of normal activity during drug therapy. 3. Clinical and laboratory recovery occurred after withdrawal of cobalt.

Holly (on page 1349 of the Aug. 13 issue) purports to present "complete investigations in animals and pregnant women." Of the group of 78 pregnant women, 58 patients are apparently the same group already reported by Holly (*Obst. & Gynec.* 5: 562-568 [April] 1955) and presented in Chicago in December, 1954. It is common knowledge that a goiter easily may escape detection if the examiner does not specifically palpate for the organ. Holly states that "no thyroid enlargement was noted in patients receiving cobalt." At the same time, in not a single one of his 78 patients was any thyroid function test reported, thus causing us to wonder if the examiner was "goiter-conscious" at the time the cases were studied. Jaimet and Thode (on page 1353) describe extensive thyroid function studies in 18 children. Of this group, nine patients received cobalt in a dosage below that which had been given in our cases. Of the nine patients who did receive cobalt in dosage comparable to ours, three showed a reduction of thyroid function after an initial course of cobalt therapy, two of them strikingly so. The authors chose to disregard these cases because a second course of therapy failed to cause a similar suppression. We believe the failure to reproduce the suppression of function may be related to the rebound recovery phase of thyroid function that occurs after withdrawal of a thyroid suppressant, and we consider the exclusion of the data on these cases unwarranted. The reduction of iodine uptake that they observed was similar to that which we reported and also to the independent observations of Keitel (*J. A. M. A.* 158:1390 [Aug. 13] 1955).

Both Holly and Jaimet and Thode infer that our observations of goiter in cobalt-treated patients may have been due to coincidence. They should not overlook an important point that we emphasized in our report, viz., not only were goiters observed to develop in patients receiving cobalt but the goiters disappeared when cobalt therapy was discontinued. This observation has been confirmed by Gairdner, Marks, and Roscoe (*Lancet* 2:1285 [Dec. 18] 1954), who reported goiter and failure to thrive in a premature infant receiving cobalt, and McBryde (*A. M. A. Am. J. Dis. Child.* 88:503 [Oct.] 1954), who reported goiter in a premature infant receiving Roncovite, a cobalt-iron preparation. Klinck (on page 1347) reports on 10 patients with thyroid hyperplasia, of whom 5 had been given cobaltous chloride, but he is unwilling to implicate cobalt as a cause of thyroid hyperplasia. The patients were apparently an unselected group from widely separated parts of the country. A statistical calculation of the binomial confidence limits shows, with 95% confidence, that in order for 5 cobalt-treated out of 10 cases of goiter to occur by chance, it would be necessary that a minimum of 18.7% (and a possible maximum of 81.3%) of the population from which these cases were drawn had received cobalt. Such a figure far exceeds prudent estimates of the drug's actual use; we, therefore, view Klinck's findings as strong support of the thesis that cobalt is goitrogenic.

In addition to the reported cases referred to above, we have received communications concerning 14 cases of goiter and/or thyroid dysfunction in cobalt-treated patients. Of these, 10 patients were infants, 4 of whom were premature; 2 patients had renal disease; and 2 had Mediterranean anemia. None of these had sickle cell anemia. We have good reason, therefore, for believing that our findings are not solely and specifically related to sickle cell anemia. Eight of the cases were observed while the patients were receiving Roncovite, thus indicating that the addition of iron to cobalt does not protect against the goitrogenic effect of cobalt. Since hypothyroidism is more injurious to the health of infants and children than to adults, we are of the continuing opinion that indiscriminate use of cobalt salts should be particularly avoided in this young age group. Our caution is especially appropriate in view of the recent communication from the editorial board of *Blood* (10:852 [Aug.] 1955). After interrogation of 17 acknowledged experts in hematology on the use of cobalt preparations, the moderator, William Dameshek, summed up: "It seems well-nigh unanimous from the above comments that cobalt has little if any value in the clinical management of anemia. Even in the anemia of chronic nephritis for which some beneficial results have been claimed, although there may be slight improvement in red cell values, there is probably little if any clinical benefit for the patient. Our experience with cobalt in the treatment of hypoplastic anemia and other instances of bone marrow failure has been almost uniformly disappointing. In iron deficiency, there seems little if any indication for using anything other than iron, which has such striking value. Because of the almost complete unanimity of the panel in this regard and because of possible toxicity of cobalt in some patients, it seems unwise to recommend cobalt alone or cobalt with iron to the medical profession, although of course one might continue its use as an experimental material under certain circumstances."

Joseph P. Kriss, M.D.
William H. Carnes, M.D.
Ruth T. Gross, M.D.
Stanford University School of Medicine
San Francisco 15.

ADENOMA SEBACEUM

To the Editor:—In the article "The Cardiologist Looks at the Skin" in The Journal, July 9, 1955, page 821, Silverman and Bernstein state that adenoma sebaceum "is a nevoid disorder in which involvement of the sebaceous glands is a feature." We are in disagreement with this statement. Our recent studies at Rosewood State Training School, Owings Mills, Md. (*Maryland M. J.* 3:607-611 [Nov.] 1954) were in agreement with those of Butterworth and Wilson (*Arch. Derm. & Syph.* 43:1-41 [Jan.] 1941). Adenoma sebaceum is a misnomer, since histological sections of this condition are singularly devoid of sebaceous gland hyperplasia; on the other hand, there is evidence of fibrous hyperplasia. Drs. Silverman and Bernstein have, however, done a superb job in their presentation and again stress the adage that "the skin may act as a mirror of internal disease."

Israel Zeligman, M.D., Med. Sc.D.
1109 N. Calvert St.
Baltimore 2.
Lieut. Samuel P. Scalia, M.C., U.S.N.R.
Box D—U. S. Naval Station
Rodman, Canal Zone.

CARDIOPERICARDIOMYOPEXY

To the Editor:—In The Journal, Aug. 20, 1955, page 1459, in the Foreign Letters section under France, the abstract of my article has a few errors. The title should be "Cardiopericardiomyopexy." The operative mortality rate in angina pectoris is 5% and not 10% as reported. These operations were performed in New York City, and I believe that it be appropriate to mention it in order not to create the impression that they were performed in France.

Aaron N. Gorelik, M.D.
1749 Grand Concourse
New York 53.

MEDICAL FILM REVIEWS

Toxemia of Pregnancy: 16 mm., color, sound, showing time 29 minutes. Prepared by M. S. Assali, M.D., S. T. Gerber, M.D., and R. D. Bryant, M.D., University of Cincinnati College of Medicine and Cincinnati General Hospital. Sponsored by Irwin Neisler Company, Decatur, Ill. Produced in 1955 by and procurable on loan from Mervin LaRue, Inc., 159 E. Chicago Ave., Chicago 11.

Toxemia is defined as an acute vascular complication of pregnancy characterized by generalized arteriolar vasoconstriction, edema or albuminuria or both, and sometimes by convulsions and coma. The vasoconstriction is considered to be humoral rather than neurogenic in origin. The effects of the vasoconstrictor substance on blood vessels and secondarily on the brain, kidney, and uterus are illustrated by animated drawings. This medium is also used to demonstrate the rationale of using a vasodilating drug (Veratrum viride) in the treatment of toxemia. The method of treatment used at the Cincinnati General Hospital is outlined, and the results in the treatment of eclampsia in over 200 consecutive cases since 1930 are given. The film mentions that toxemia accounts for one-third of all maternal deaths in the United States. It should be said that it is one of the three most common causes of maternal mortality along with hemorrhage and sepsis, these three producing about 50% of the deaths. It is not the leading cause of fetal mortality. The impression is given that the eyeground findings are very valuable for diagnosis and prognosis; however, this would be questioned by some. The film gives the authors' concept of vasoconstriction, which not everyone would agree with. Nevertheless, the film should be of considerable general interest. This method of treatment should be considered very carefully before there is widespread adoption of it, because the authors are treating a symptom instead of a disease and this should be clarified. The photography, animation, and narration are very well done.

Too Young to Burn: 16 mm., color, sound, showing time 26 minutes. Prepared by Harry F. Dietrich, M.D., Beverly Hills, Calif. Produced in 1954 by Sid Davis Productions, Hollywood, Calif., for the Federation of Mutual Fire Insurance Companies, Chicago. Procurable on loan from Modern Talking Picture Service, 140 E. Ontario St., Chicago 11, or regional offices of Modern Talking Picture Service.

The purpose of this film is to cause parents to think about safeguarding their children from fire and to cause them, as a result of their thinking, to teach fire safety correctly to their children. It sets forth the concept that the absolute parental protection of children from accidental injury from early infancy must be replaced later through the preschool years by education. This point is illustrated by several scenes in which accidental burns of a minor nature are used by parents as an educational experience. The film contains much negative teaching, which is not too effective, and the pace is too slow to maintain interest, particularly in the first half of it. It would be more effective if the points made were concentrated into approximately half the time. The film is intended primarily for parents of infants and preschool children and would also be suitable for any groups concerned with accident prevention, particularly in the home and in regard to children, and to special groups of upper high school and college age who are studying community problems and accident prevention.

NEW FILMS ADDED TO A. M. A. MOTION PICTURE LIBRARY

Surgical Approaches to the Elbow Joint: 16 mm., color, sound, showing time 37 minutes. Prepared by LeRoy C. Abbott, M.D., University of California. Produced in 1950 by Churchill-Wexler Film Productions, Los Angeles, for the Veterans Administration. Procurable on loan (service charge $3) from Committee on Motion Pictures and Medical Television, American Medical Association, 535 N. Dearborn St., Chicago 10.

This motion picture combines the surgical and anatomic approaches to the elbow joint. Skillful blending of animated drawings with an anatomic review based on demonstration of the parts in the living subject precedes the surgical approach. A desirable educational feature of the film is the reiteration and summarization of the essentials of a given section after they are first pictured and described. (A complete review of this film appeared in the Feb. 24, 1951, issue of THE JOURNAL, page 584.)

Surgical Approaches to the Spine and Sacroiliac: 16 mm., color, sound, showing time 27 minutes. Produced in 1953 by Churchill-Wexler Productions, Los Angeles, for the Veterans Administration. Technical adviser: LeRoy C. Abbott, M.D., University of California. Procurable on loan (service charge $3) from Committee on Motion Pictures and Medical Television, American Medical Association, 535 N. Dearborn St., Chicago 10.

The surgical approach to the joint is demonstrated by use of a cadaver, the steps in the procedure being shown by diagram. The approach to the lumbar aspect of the spine is also illustrated by an operation on a cadaver, with a recapitulation in animation that clarifies the steps in the procedure. (A complete review of this film appeared in the April 23, 1955, issue of THE JOURNAL, page 1580.)

Surgical Approaches to Joints of the Wrist: 16 mm., color, sound, showing time 33 minutes. Produced in 1951 by Churchill-Wexler Productions, Los Angeles, for the Veterans Administration. Technical adviser: LeRoy C. Abbott, M.D., University of California. Procurable on loan (service charge $3) from Committee on Motion Pictures and Medical Television, American Medical Association, 535 N. Dearborn St., Chicago 10.

Animated diagrams depict the bones, ligaments, muscles, tendons, and neurovascular structures with which the surgeon deals in various approaches to the wrist. The sections on anatomy are followed by operations employing approaches to the volar, radiovolar, ulnar, and dorsal aspects. (A complete review of this film appeared in the Nov. 29, 1952, issue of THE JOURNAL, page 1338.)

Disaster Anesthesia: 16 mm., color, sound, showing time 35 minutes. Prepared by Max S. Sadove, M.D., and Lloyd A. Gittelson, M.D., University of Illinois College of Medicine. Produced in 1952 by Scientific Film Company, Berwyn, Ill., for E. R. Squibb & Sons. Procurable on loan (service charge $4) from Committee on Motion Pictures and Medical Television, American Medical Association, 535 N. Dearborn St., Chicago 10.

This is a civil defense training film for teaching dentists and physicians to act as anesthetists for emergency duty in case of disaster. A technique is shown for administering general anesthesia safely and efficiently to huge groups of injured people with improvised equipment and shelter. In general, this film is well planned; however, the subject of resuscitation should be emphasized a little more in detail. In the use of premedication, a warning about dosage should be given so that overdoses will not be administered. This film is recommended for showing to all physicians.

Principles of Respiratory Mechanics: Part I: 16 mm., color, sound, showing time 22 minutes. Prepared by Edward P. Radford, M.D.; Jere Mead, M.D.; Malcolm McElroy, M.D., Department of Physiology, Harvard School of Public Health; and Matilda C. Smith, National Foundation for Infantile Paralysis. Produced in 1955 by Science Pictures, Inc., under a grant from the National Foundation for Infantile Paralysis. Procurable on loan (service charge $1) from Committee on Motion Pictures and Medical Television, American Medical Association, 535 N. Dearborn St., Chicago 10.

This film illustrates the mechanical behavior of the lungs in normal and pathological states. Utilizing for illustration normal subjects, patients with respiratory conditions, and animated drawings, the film deals with such basic concepts as elastic and resistive properties of the lungs and pressure-volume relationships. An unusual feature is the use of a transparent respirator of the Drinker type that should be extremely valuable for purposes of instruction and research. The main value of the film lies in the actual photographs of the volunteer subjects and in the animated diagrams. However, the diagrams may be criticized for portraying the up and down movement of the diaphragm as a succession of jerks and for not showing accurately the movement of the lungs at the costophrenic angles. This film should be of interest to medical students in a course of respiratory physiology and also to students in special courses on the care of patients with poliomyelitis. The color photography, animated sequences, and narration are excellent.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

The Diagnosis of Tricuspid Stenosis. W. Whitaker. Am. Heart J. 50:237-241 (Aug.) 1955 [St. Louis].

The blood pressure records obtained by catheterization of the right side of the heart from one patient with a normal tricuspid valve and from three patients with mitral stenosis and tricuspid stenosis are described. Of the three patients with tricuspid stenosis, two had tricuspid stenosis and sinus rhythm, and their records showed an abnormally high auricular pulse pressure that was not transmitted to the ventricle and a higher diastolic blood pressure in the auricle than in the ventricle. The record of the third patient with tricuspid stenosis showed no auricular pulse, since the patient had auricular fibrillation, but there was an abnormal diastolic blood pressure gradient between right auricle and ventricle similar to those recorded in the two patients with sinus rhythm. A rise in auricular blood pressure of about 5 mm. Hg during ventricular systole suggested that there was also slight tricuspid incompetence in the patient with auricular fibrillation, and this was confirmed at operation, when a stream of blood was felt regurgitating through the stenosed tricuspid valve during ventricular systole. Thus in all three patients with an abnormal tricuspid valve, the auricular blood pressure was higher than the ventricular pressure during ventricular systole. This abnormal pressure gradient across the tricuspid valve appears to be the most valuable sign of tricuspid stenosis. Abnormally high auricular pulse pressures, which were not transmitted to the ventricle and which were present in the two patients with sinus rhythm, were manifested clinically as a giant "a" wave in the jugular venous pulse and as a presystolic hepatic pulsation. The limitations of this clinical sign are, first, that it is lost when auricular fibrillation develops (as occurs in many patients with tricuspid stenosis) and, secondly, that when there are signs of pulmonary hypertension it is impossible to decide whether giant "a" waves are a manifestation of tricuspid stenosis or of pulmonary hypertension. The giant "a" waves are a valuable sign of tricuspid stenosis only when they occur without other signs of complicating pulmonary hypertension, such as a lift over the right ventricular outflow tract, a palpable pulmonary second heart sound, right ventricular hypertrophy in the electrocardiogram, and abnormally prominent pulmonary arteries on radiological examination.

Eisenmenger's Complex. J. W. Brown, D. Heath and W. Whitaker. Brit. Heart J. 17:273-284 (July) 1955 [London, England].

Brown and associates describe observations on seven patients with Eisenmenger complex. This is a clinical rather than an anatomic diagnosis, appropriate for patients with cyanotic congenital heart disease with pulmonary hypertension and an overriding aorta. The symptoms and signs associated with this anomaly are characteristic but not diagnostic of it, since they occur in other forms of cyanotic congenital heart disease with pulmonary hypertension. Breathlessness on exertion, hemoptysis, and chronic cough were the common symptoms. Hoarseness and aphonia did not occur in the present series. The only physical signs common to this group of patients, other than cyanosis, were those of pulmonary hypertension. Cyanosis developed during adolescence except in one patient, in whom it was present from birth. Four patients had no murmurs. A parasternal systolic murmur is not an essential feature. On electrocardiographic examination there was evidence of right ventricular dominance in all patients except one who had also systemic hypertension. On radiological examination there was evidence of right ventricular hypertrophy and dilatation of the pulmonary arteries, which was not of the extreme degree usually considered characteristic of Eisenmenger complex. Angiocardiography was the most important diagnostic investigation, since it demonstrated the overriding aorta. Cardiac catheterization confirmed the presence of pulmonary hypertension. The anatomic components of Eisenmenger complex have been defined as a high ventricular septal defect in the membranous part of the septum, dextroposition of the aorta so that it arises from both ventricles above the septal defect or from the right ventricle alone, absence of pulmonary stenosis with a normal or dilated pulmonary artery, and characteristic changes in the pulmonary vascular tree. The pathological features that may occur in a patient fulfilling the criteria for a diagnosis of Eisenmenger complex in life include at one extreme a ventricular septal defect with pulmonary hypertension, right ventricular hypertrophy, and an overriding aorta and at the other extreme a moderate degree of transposition of the great vessels. Recognizing this, Lev in 1953 subdivided Eisenmenger complex anatomically into Eisenmenger complex with overriding aorta and the Eisenmenger type of transposition, as in one patient of the present series, who had an abnormal origin of the coronary arteries. On histological examination, medial hypertrophy and intimal changes in the pulmonary arteries and arterioles, which occur in other forms of congenital heart disease with pulmonary hypertension, are also characteristic of Eisenmenger complex.

Age and Sex Factors in Coronary Artery Disease. A. A. F. Peel. Brit. Heart J. 17:319-326 (July) 1955 [London, England].

The investigations in the course of which the present observations were made were originally begun to assess the immediate and remote prognosis in patients who have had an acute coronary episode and do not include cases of chronic angina of effort which started so insidiously and progressed so slowly that no definite episode could be recognized. The patients were seen in consulting practice, and the material therefore includes a wider range of severity than series of hospital admissions. Analogous cases referred to the outpatient department or admitted to the cardiac wards of the Victoria Infirmary, Glasgow, Scotland, between January, 1951, and December, 1953, were also studied. The average incidence of coronary attacks was compared in men and women in a series of 865 cases. The overall proportion of males to females was four to one. This ratio varied in different age groups. The youngest male was aged 28, and there were several between this age and 43, which was the age of the youngest female. Below age 50 the ratio of males to females was 7 to 1; between 50 and 59 it was almost 10 to 1. From 60 to 69 the ratio had dropped to just over four to one, while from 70 onwards it was under two to one. Coronary artery disease starts earlier in men, reaches a peak at age 55 to 59 and thereafter falls steeply. In women the rise in incidence is slow and steady from age 40 to age 70; there is no ultimate fall in incidence comparable to that seen in men. The immediate mortality in 276 cases of cardiac infarction, which were treated before anticoagulants were adopted, was analyzed in relation to age and sex. In men the mortality rose steadily from 5% at ages under 44 to 35% at ages over 65; in women the mortality is approximately 25% in all age groups, rising only slightly as age advances. The long-term prognosis was studied in 240 survivors from cardiac infarction and 129 survivors from attacks of cardiac ischemia. The best expectation of life was

---

The place of publication of the periodicals appears in brackets preceding each abstract.

Periodicals on file in the Library of the American Medical Association may be borrowed by members of the Association or its student organization and by individuals in continental United States or Canada who subscribe to its scientific periodicals. Requests for periodicals should be addressed "Library, American Medical Association." Periodical files cover 1946 to date only, and no photoduplication services are available. No charge is made to members, but the fee for others is 15 cents in stamps for each item. Only three periodicals may be borrowed at one time, and they must not be kept longer than five days. Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

found in men aged 50 to 54 who fared better than younger men; the worst expectation was at age 60 to 64. In women the expectation was best at ages below 50 and diminished progressively as the age at onset increased. Information available on deaths showed that almost one third of the deaths occurred in a second or subsequent attack, and these deaths are spread over the ensuing years being only a little more common in the first than in later years. Cardiac failure accounted for nearly another third, but most of the deaths from this cause occurred within the first year. One death in every five occurred quite suddenly while the patient was engaged in his usual daily routine; these deaths again were perhaps a little more common in the first and third than in other years. The author feels that deaths from bronchial carcinoma soon after coronary thrombosis or cardiac infarction seem much too high to be purely accidental. The original coronary thrombosis may have been an early symptom of the developing bronchial carcinoma.

Specific Therapy for Salicylism. G. E. Schreiner, L. B. Berman, J. Griffin and J. Feys. New England J. Med. **253**:213-217 (Aug. 11) 1955 [Boston].

This report concerns studies carried out on two patients poisoned with acetylsalicylic acid (aspirin). The first patient, a man aged 44, was found unconscious in his room. Seven empty aspirin bottles were found, and it was estimated that he had ingested 210 gm. of aspirin. Since the patient's clinical appearance raised considerable doubt as to spontaneous recovery, dialysis on a Kolff artificial kidney was begun seven and one-half hours after admission. After one hour, respiration was more quiet; after two hours the patient was awake, attempting to speak, and able to drink water, and by the third hour he was speaking rationally. The procedure was carried out for a total of six hours, with a mild hypotension (blood pressure of 80/60 mm. Hg) as the only untoward effect. The patient denied any suicide attempt but stated that he had obtained seven bottles of aspirin about eight weeks before admission and had begun to take them for headaches, at first 5 tablets a day, gradually increasing to 50 tablets a day. This gave him a pleasantly drowsy feeling along with blurred vision, diminished auditory acuity, sweating, and occasional headache. On the day before admission he had taken no more than the usual amount but had combined it with Coca-Cola. He had felt faint toward the evening before admission and then remembered no more until he awakened during the dialysis. The second patient was a 19-year-old woman who had a history of an earlier suicide attempt with aspirin. On Sept. 16, she had dissolved "1 bottle" (83 gm.) of aspirin in a glass of water and had drunk about "half." She was seen at another hospital four hours later, and a gastric lavage was performed. She was then discharged. Later that evening she began to complain of difficulty in hearing and was returned to the same hospital at 10:00 a. m. on Sept. 17, awake, hyperpneic, restless, and partially deaf. She was transferred to Georgetown University Hospital, where, on admission, she was drowsy but oriented. Speech was slurred, and she complained of a roaring sound in her ears. Physical examination revealed flushed facies, a hot, dry skin and deep, irregular respirations at 36 per minute. The blood pressure was 110/50 mm. Hg; the pulse rate was 100 per minute and the temperature 99.8 F (37.7 C) by rectum. Because approximately 30 hours had elapsed since the ingestion of aspirin without loss of consciousness, conservative management was considered justified, and intravenous administration of fluids and sodium lactate was started. The course over the next six days was one of progressively severe mental disturbance, including visual hallucinations and maniacal behavior, which reached their peak on the fourth day. She abruptly reverted to normal behavior on the fifth day and was discharged, asymptomatic, one day later. The authors emphasize the value of the artificial kidney in quickly removing salicylates from the body. In an addendum the authors mention two other cases of salicylism due to the ingestion of aspirin (132 gm. in one and 166 gm. in the second patient). The first died on admission nine hours after ingestion. The second patient was admitted 16 hours after ingesting 166 gm. A blood level of 115 mg. per 100 cc. was reduced to 29 mg. by a seven hour dialysis, and the patient awakened and had a complete recovery of reflexes and faculties. However, multiple coagulation defects, with gastrointestinal hemorrhage, developed; she received 10 liters of blood but died five days later with generalized purpura and anuria.

Treatment of Asthma by Corticotherapy: Based on Ninety-Five Cases. P. Vallery-Radot, C. Laroche and G. Lyon. Presse méd. **63**:1043-1045 (July 16) 1955 (In French) [Paris, France].

The authors treated 95 patients with severe asthma with corticotropin, cortisone, or hydrocortisone. The effects of the three hormones are highly similar. Rapid sedation of symptoms was obtained in 80 patients. Of the 15 patients in whom therapy failed or proved unsatisfactory, 4 died. Necroscopic examination showed the usual lesions of status asthmaticus. The long-term results were variable; only 10 patients gained benefit from corticotherapy for more than six months. Prolonged treatment, from two months to three years, was practiced in 16 patients and was successful in 12 of them. There were three complete failures and one fair result. Dosage in these patients ranged from 50 to 100 mg. of corticotropin or cortisone each day. There is no means of judging the individual patient's chances for successful treatment in advance, since the result seems to be independent of age, severity, or duration of disease, and whether the asthma stems from an allergy or a bronchial superinfection.

Incidence of Amebiasis in Healthy Individuals, Clinic Patients and Those with Rheumatoid Arthritis. R. E. Rinehart and H. Marcus. Northwest Med. **54**:708-712 (July) 1955 [Seattle, Wash.].

Comparative studies of the efficiency of various methods of preserving and staining stool specimens for the identification of trophozoites and cysts of Endamoeba histolytica showed that examination of a wet preparation, stained with dilute iodine solution, preferably after concentration, is the most sensitive method for detection of the cystic forms of E. histolytica. One hundred stool specimens obtained from four persons, each of whom had been negative for E. histolytica on at least 12 previous examinations, were examined with the iodine staining method; 2 of the 100 specimens were reported to contain unidentified cysts and 98 as "no parasites found," giving a presumptive false positive rate of less than 2% for a single examination. Thus, in competent hands, the iodine staining method does not give rise to extensive false positive reports. Stool specimens from 146 normal medical students, from 150 clinic patients selected at random but with the exclusion of patients with rheumatoid arthritis, and from 150 patients with rheumatoid arthritis were examined. Results showed that six stool examinations, at intervals of two or more days, will establish the diagnosis in 95% or more of the persons infected with E. histolytica. A single examination will detect from 40 to 60% of those infected. Approximately 30% of normal persons living in Oregon are at any one time subclinically infected with E. histolytica. A similar incidence was found in persons with a wide variety of illnesses. Ninety-five per cent of the patients with rheumatoid arthritis were infected with E. histolytica.

Infection with Drug-Resistant Tubercle Bacilli. F. Beck. Am. Rev. Tuberc. **72**:151-157 (Aug.) 1955 [New York].

Of 600 patients with newly diagnosed pulmonary tuberculosis who had been admitted to the State Tuberculosis Hospital in Ray Brook, N. Y., since 1948, tubercle bacilli were cultured in 480. Drug-susceptibility studies revealed that only 10 of the 480 patients had been infected with drug-resistant tubercle bacilli. The presumptive source of contact could be established in all but two of these. The strains of tubercle bacilli were primarily resistant to streptomycin in eight patients and to streptomycin and aminosalicylic acid (PAS) in two patients. Of these 10 patients, one did well without chemotherapy and 8 made satisfactory recoveries after multiple drug therapy, which included streptomycin. Only the 10th and most recent patient had an unfavorable prognosis. Infection with drug-resistant tubercle bacilli in such a small ratio of patients is not likely to become a serious public health problem. Most of the patients with this type of infection were treated successfully, because of the availability of several effective chemotherapeutic agents.

The Prevalence of Streptomycin- and Isoniazid-Resistant Strains of Mycobacterium Tuberculosis in Patients with Newly Discovered and Untreated Active Pulmonary Tuberculosis. A. D. Chaves, A. B. Robins, H. Abeles and others. Am. Rev. Tuberc. 72:143-150 (Aug.) 1955 [New York].

Between July, 1953, and January, 1955, culture studies were carried out on 24 hour sputum specimens obtained from 898 untreated patients with newly reported active and newly reactivated pulmonary tuberculosis who had been registered from the 23 chest clinics of the state of New York. Mycobacterium tuberculosis was isolated from the sputums of 385 (43%) of these patients. The patient-strains of tubercle bacilli were tested for susceptibility to streptomycin and isoniazid by the direct method. In 342 (89%) of the 385 patients, the strains of Mycobacterium tuberculosis were completely susceptible to both streptomycin and isoniazid. Of the remaining 43 patients (11%) from whom strains were isolated that showed any degree of resistance to either drug, only 6 (1.6% of the total) had strains significantly resistant to streptomycin and only 9 (2.3% of the total) had strains significantly resistant to isoniazid. None of the patients had organisms that were significantly resistant to both drugs. While strains of tubercle bacilli resistant to streptomycin and isoniazid thus were demonstrated in the sputum of a small number of chest clinic patients with newly discovered and untreated active pulmonary tuberculosis, this does not, at present, represent a serious public health problem.

Autoerythrocyte Sensitization: A Form of Purpura Producing Painful Bruising Following Autosensitization to Red Blood Cells in Certain Women. F. G. Gardner and L. K. Diamond. Blood 10:675-690 (July) 1955 [New York].

Gardner and Diamond describe the occurrence, in four women, of an abnormal response to bruising, characterized by local pain, swelling, and extension of bleeding into adjacent areas. The first of the four cases concerned a 44-year-old nurse, who 20 years before had been struck by an automobile and had suffered a fracture of the skull with concussion and a fracture of the pelvis, with multiple abrasions, contusions, and ecchymoses of the lower extremities. Two months later her physician observed that her right knee remained stiff and had a persistent ecchymotic area. The knee joint was explored surgically and a hematoma removed from the patellar bursa. However, the ecchymotic areas around the knee persisted, and the patient began to have painful swelling and ecchymoses around the ankle. At this time, she was seen by one of the authors of this report. Studies on her blood yielded normal results. A wide variety of medical treatments were ineffective. A splenectomy was done in an effort to improve the bleeding tendency and to control the ecchymotic lesions. Following splenectomy the skin lesions were absent for a three year period but then reappeared. Associated with the skin lesions, the patient has had two episodes of cerebral hemorrhage and repeated bleeding from the gastrointestinal and genitourinary tracts without known trauma. Multiple symptoms suggest that the patient may have a diffuse vascular defect as well as an abnormal tissue response to extravasated red blood cells. During the first 15 years of her illness, her painful ecchymotic lesions were initiated by trauma. In later years, "physiologic trauma" appears to have been adequate to initiate the abnormal tissue reaction. The use of whole blood injections to control the painful lesions is of interest, for certainly one would anticipate further sensitization from the procedure, but some "desensitization" and temporary benefit seemed to result. After presenting the histories of the other three patients, the authors describe skin test procedures carried out on the patients and on controls. The observations on the four women patients indicate a tissue sensitivity to extravasated red blood cells. The factor responsible was present in the red cell stroma and was not associated with the hemoglobin. All patients had had an episode of trauma associated with bruising before the onset of the painful ecchymotic lesions. The authors believe that the term "erythrocyte autosensitization" can be used to describe what has occurred here. They suggest that this syndrome may represent another example of autosensitization such as has been suggested for lupus erythematosus, some forms of acquired hemolytic anemia and of thrombocytopenic purpura, and for an increasing number of disease states.

The Mechanics of the "L. E." Cell Phenomenon, Studied with a Simplified Test. I. Snapper and D. J. Nathan. Blood 10:718-729 (July) 1955 [New York].

The discovery of the L. E. cell in heparinized bone marrow preparations of patients with disseminated lupus erythematosus by Hargraves and associates has been repeatedly confirmed. The L. E. cell consists of a neutrophilic polymorphonuclear leukocyte whose nucleus is compressed to the periphery of the cell by the cytoplasmic inclusion of a relatively homogeneous, swollen mass, which takes a pale blue color with Wright or Giemsa stains. All the current methods of detecting the L. E. cell involve the necessity for venipuncture, repeated and bothersome centrifuging, and the talents of a trained technician. The preparation of the smears in which the L. E. cells must be searched for requires hours of work. In some instances, when the diagnosis of disseminated lupus erythematosus is certain on clinical grounds, one may spend several fruitless hours searching for the L. E. cell. For these reasons an extremely simple, inexpensive, and rewarding method using one drop of finger blood has been devised by the authors. With this technique large numbers of lupus cells are formed by positioning one drop of finger blood or ear blood of a lupus patient upon an accumulation of dried, normal polynuclear leukocytes. Thick leukemic smears and perhaps even imprints of various carcinomas or Hodgkin's tissue can also be used as substrates. No false positive results were obtained in a group of control patients. Striking results were obtained with this method in 20 of 21 patients known to have disseminated lupus erythematosus. The remaining patient in whom a single L. E. cell was found by a conventional method to date has yielded no lupus cells by this method. The difference in appearance of the inclusion body of some of these cells from the characteristic Hargraves cell is highlighted. Theoretical considerations of the mechanism of lupus cell formation are discussed and reassessed in the light of the experience with this method. For the formation of L. E. cells it seems necessary that living polynuclear leukocytes, dead cells, and lupus serum be brought together. The lupus serum can depolymerize the desoxyibose nucleic acid of the nuclei of the dead cells but not of living cells. The depolymerized material is then phagocytized by living polynuclear cells and formation of lupus cells results.

The Inheritance of Porphyria. G. Dean and H. D. Barnes. Brit. M. J. 2:89-94 (July 9) 1955 [London, England].

The porphyrias are disorders involving profound disturbances in the metabolism of pyrrole pigments resulting at times in marked increase in the excretion of porphyrins in the urine. The authors investigated porphyria among Europeans in South Africa. The genealogies of 13 porphyric families, all of old stock and almost certainly related far back in South African history, have been traced and a number of other families await investigation. A total of 236 members (121 male and 115 female) had clinical manifestations of porphyria. The family tree of a large porphyric family group is presented. This group is typical of the 12 others that have been investigated. In all these groups porphyria has appeared in its acute form, in its chronic cutaneous form (the "cutanea tarda" type), or as a symptomless porphyrinuria. In many cases one type changed into the other. They are different manifestations of the same inherited disorder. Fifty per cent of the children of a porphyric parent will inherit porphyria and the distribution of the inheritance between the sexes is approximately equal. Porphyria, as it occurs in South Africa, is inherited as a Mendelian dominant characteristic and is not sex-linked. Cutaneous manifestations are more pronounced in men, acute attacks are more common in women. Men are more constantly exposed to the sun and to trauma; women appear more likely to be given sedative drugs or to be operated on for abdominal pain, often under a barbiturate anesthetic. Barbiturates may precipitate an acute attack of porphyria. There may also be endocrine factors. In the latent stage diagnosis may be difficult. The personal and family history is of the utmost importance, and the urine and feces should be examined by a biochemist who is experienced in detecting porphyrins. When a diagnosis of porphyria is made, it is important to trace the genealogical tree and to investigate the other members of the family group. These investigations will usually result in the discovery of many other cases in members of the family group, who could then be warned of the inherent danger.

Carcinoma of the Cecum: Clinical Analysis of 33 Cases. R. C. Lynch, S. B. Hutton and G. D. Johnson. Am. J. Gastroenterol. 24:53-60 (July) 1955 [New York].

During the 10 year period ending Dec. 31, 1952, of 125,000 new patients admitted to the Ochsner Clinic for examination there were 33 with proved carcinoma of the cecum. The authors analyze observations on these 33 patients in an attempt to elucidate early diagnostic features. Fourteen of the patients came to the physician because of pain. Eight patients had noted a definite change in bowel habits, and two complained of passage of blood from the lower bowel. In the remaining nine patients, a group of symptoms, including the presence of an abdominal mass, was the reason for medical consultation. Operation was performed on 32 of the 33 patients. The remaining patient was admitted to the hospital in extremis from intestinal obstruction. Four of the 32 patients operated on died in the hospital. Of the 28 patients who survived surgical treatment, 27 reported for subsequent examination. Of the two patients on whom exploration and biopsy were carried out, one died in the hospital and the other survived for one year. This patient had received several courses of nitrogen mustard therapy. Only one of the five patients on whom palliative ileotransverse colostomy was performed survived a comparable period. In 25 patients resection of the right colon and terminal ileum and ileotransverse colostomy was performed. One of these died shortly after operation, and it has been impossible to trace another. Of the remaining 23 patients, 7 died of recurrent metastasis within 14 months following operation. The remaining 16 are well or without evidence of metastasis for varying periods. From this group of cases it appears that carcinoma of the cecum develops in males at an earlier age than in females. The large number of patients reporting for examination with a long history of abdominal pain and secondary evidence of loss of weight and anemia underscores the necessity of complete examination, repeated, if need be, in individuals that are apt to be considered as psychoneurotic. Once again, the great difference in prognosis following operation for early or fully resectable carcinoma and for advanced lesions is apparent. This recurrent plea for early diagnosis should include advocation of abdominal exploration if there are definite indications of carcinoma without demonstrable roentgenographic evidence.

Experiences with Cortisone Therapy in Virus Hepatitis. L. Heilmeyer, F. Schmid and H. A. Kühn. Deutsche med. Wchnschr. 80:992-999 (July 1) 1955 (In German) [Stuttgart, Germany].

Heilmeyer and associates report on their experience with cortisone and corticotropin therapy in 50 patients (24 men and 26 women) with acute virus hepatitis. The ages ranged between 19 and 68 years. Only relatively serious cases were treated with cortisone, that is, those patients whose serum bilirubin content was above 10% at the time of their admittance to the clinic. In the majority of patients it was much higher, ranging up to 45%, the average being 17.2%. Treatment was usually begun about eight days after the onset of jaundice. The 50 patients of the control group were of about the same age range, and their average bilirubin values were 18.4%. All patients were kept in bed and received a diet of high carbohydrate and low fat content. Heat was applied locally and vitamin B complex and vitamin C, glucose, and levulose were given. In addition to these measures, the group treated with cortisone was given cortisone by mouth, beginning with 150 to 250 mg. per day, then 100 mg. daily for 8 or 10 days, until the patient received a total dose of 1,500 mg. On the last two days of cortisone therapy, corticotropin was given in addition, at first 20, then 30, then 50 units, and after that 30 or 20 units daily, for six days. Some of the patients in coma were given in addition continuous drip infusion containing levulose, total adrenal cortical extract, methionine, and choline. Liver function tests were made at regular (usually eight day) intervals. A surprising improvement in the general condition was the first noticeable effect of the cortisone treatment. Nausea and vomiting usually disappeared on the first or second day, also the asthenia. The appetite and food intake improved. Rapid decrease in serum bilirubin level was the most noteworthy sign of objective improvement. A return to values of 1.5 or 1 mg. of bilirubin in 100 cc. of serum was accomplished in about 56 days in the patients treated with cortisone and in 69 days in the control cases. This difference of 13 days is statistically significant. The other functional tests of the liver, particularly those that are specific for the liver cell, responded much less rapidly, such as the serum iron content and the prothrombin concentration. Death resulted in four patients who were comatose at the time of hospitalization and in four others in whom coma developed during cortisone therapy. One comatose patient responded to the combination of cortisone and the intravenous drip infusion with levulose, total adrenal cortical extract, choline, and methionine.

Laboratory Findings in Epidemic Hemorrhagic Fever. R. W. Speers, S. Katz, T. V. Parran and A. Steer. J. Lab. & Clin. Med. 46:28-40 (July) 1955 [St. Louis].

In 1951, physicians in Korea encountered a disease previously unknown to them, epidemic hemorrhagic fever. The authors report hematological, urinary, and blood chemistry findings in a group of 76 patients. In order to study the prognostic value of this laboratory information, a comparison is made between data from the group of 76, all but 6 of whom survived, and data from a group of 22 patients who died (6 fatalities of the original 76 plus 16 others). The 92 patients had epidemic hemorrhagic fever during an outbreak of the disease between April and July, 1952. Leukocytosis and a leukemoid response occurred in the peripheral blood during the acute febrile phase, and, soon thereafter, a lymphocytic response with the appearance of many atypical lymphoid cells was noted. A decreased number of peripheral blood platelets was observed during the hemorrhagic phase. Proteinuria, microscopic hematuria, granular celluria, oliguria, and azotemia appeared during the first week of illness, and renal concentrating function decreased. During the hypotensive or shock phase hemoconcentration was evidenced by abnormally increased blood hemoglobin and hematocrit values. The onset of diuresis during the second week of illness was usually associated with the onset of convalescence, during which abnormal findings returned to normal. In general, the white blood cell count, erythrocyte sedimentation rate, and renal concentrating function were last to return to normal. Abnormal laboratory findings in patients who subsequently died were of the same type as findings in patients who survived. Abnormalities of greater severity and more prolonged duration, however, occurred more commonly in fatal cases.

Serologic Investigations of Herpes Simplex Virus Infections. H. E. Dascomb, C. V. Adair and N. Rogers. J. Lab. & Clin. Med. 46:1-11 (July) 1955 [St. Louis].

The virus of herpes simplex has been related etiologically to such clinical syndromes as Kaposi's vericelliform eruption, fulminating visceral disease with hepatitis, stomatitis, and fatal or near-fatal encephalitis. Recent investigations have shown that herpes simplex virus may be implicated etiologically in aseptic meningitis about as frequently as mumps or lymphocytic choriomeningitis virus or the leptospiras. This report is concerned with an evaluation of the complement fixation test, which is a simple and rapid procedure for serologic investigations and which may supplement or be a substitute for the more laborious neutralization test. A complement-fixing antigen was employed in which the infectivity was destroyed by exposure to ultraviolet light. The patients selected for study were United States military personnel or their dependents who were treated at a dispensary or hospital for herpetic or nonherpetic disease. Specimens for isolation of virus consisted of fragments of tissue, or body fluids, or swabs of exudate collected from patients during the course of their disease or at autopsy of fatal cases. Attempts to recover the virus in animals or embryonated eggs were performed using specimens freshly collected or stored frozen at -70 C (-94 F) for a few days prior to inoculation. Blood samples were obtained from the patients during the acute phase of their illness and again at variable periods during convalescence. A complement fixation test for herpes simplex employing irradiated noninfectious antigen of chick embryo origin provides a simple, rapid procedure for the specific assay of antibody against herpes simplex virus. The results of the complement fixation test correlate well in the majority of instances with those of the in ovo neutralization test. However, the two procedures presumably measure different antibodies. In certain patients, namely, those with primary superficial mild herpes simplex, neutralizing antibodies appear without associated complement fixation antibodies. Both types of antibodies develop in patients with severe primary herpes. In the recurrent type of disease both types are usually present in the earliest available sample of serum, but in a fair proportion of patients one or the other antibody may increase in titer during convalescence. The complement fixation technique is a valuable diagnostic tool in many types of herpetic infection, especially those involving the central nervous system, but it does not replace the neutralization test or the viral isolation and identification procedure. Studies on the distribution of complement fixation antibodies against herpes in normal population groups of different ages provided data in general accord with the older observations of distribution of neutralizing antibodies. In general, the occurrence of complement fixation antibodies is infrequent in children and young adults, but the majority of persons over 30 have these immune substances. The complement fixation method is useful in serologic surveys designed to detect past infection with herpes simplex.

Aspirin and Ulcer. A. Muir and I. A. Cossar. Brit. M. J. 2:7-12 (July 2) 1955 [London, England].

In 1947 Muir and Cossar started experimental and clinical investigations on the possible harmful effects of aspirin on the stomach, particularly in patients with peptic ulcer. In 20 patients with radiologically confirmed peptic ulceration, three standard caffeine-citrate fractional test meal examinations were performed at intervals of a few days. The first test served as a control. After the removal of the fasting juice during the second and third meals, two bland calcium lactate tablets and two 5 grain (0.32 gm.) aspirin tablets were given, respectively, uncrushed, with a little water. In five patients blood-staining of the specimens was observed during the aspirin test meal alone. In one case it was much greater than had been observed during the calcium lactate test meal; in two it was similar; and in one it was less. The conversion by aspirin of a previously consistently negative test for fecal occult blood to a strongly positive one in three patients also seemed significant. In order to obtain pathological proof of the effect of aspirin on the stomach, two uncrushed 5 grain (0.32 gm.) aspirin tablets were given with a little water to patients two hours prior to gastrectomy for peptic ulceration. Of 20 patients who received ordinary commercial brand aspirin, 12 had macroscopic evidence of mucosal irritation in the form of an acute gastritis. The lesion was always most marked in the pyloric antrum and on the lesser curvature. The picture was typical of an acute erosive gastritis. Of the 20 patients who received specially hard aspirin tablets, only 8 showed acute erosive gastritis, and no severe lesions were seen in this series. These findings were unexpected in view of the frequency with which large portions of residual aspirin were found in the stomach. It was anticipated, as a result of the findings in the first series, that this would increase the more severe type of lesion. However, in almost all cases the residual aspirin was coated in a thick capsule of dense mucus. Of the 20 patients who received soluble aspirin, 18 showed no mucosal reaction. As a preliminary investigation to clinical studies, 300 persons were questioned about aspirin intolerance. About 1 in 20 admitted that aspirin gave them dyspepsia—heartburn, sometimes nausea, and occasionally epigastric discomfort. Then 318 patients with peptic ulcer were questioned, and approximately one-third (110) knew that aspirin could be taken only at the risk of dyspepsia. Some felt that ulcer pain could be aggravated or restarted by taking aspirin. A group of 83 peptic ulcer patients, who had periodic bouts of ulcer pain with long remissions, were questioned to ascertain the factors causing their latest recurrence. Fourteen of 34 gastric ulcer patients and 19 of 49 duodenal ulcer patients admitted to taking aspirin less than 24 hours before the recurrence of their symptoms. The fact that 15 patients with severe dyspepsia who were habitual aspirin takers were cured of their dyspepsia by its withdrawal proves that dyspepsia may be caused by aspirin. Questioning of patients with hematemesis revealed a large number who had taken aspirin within a few hours of their hematemesis. Even if the 11 patients of this series who took aspirin regularly are eliminated, there still remain 43 patients among 166 in whom aspirin seemed at least a precipitating factor of hematemesis. However, only 1 of 31 patients admitted taking aspirin within six hours of acute duodenal perforation. Aspirin should never be given to patients with peptic ulceration or to those who have any gastric intolerance for it. This instruction should be given a prominent place in peptic ulcer advice charts.

So-Called Late Chlorosis with Dysphagia. R. J. H. Kruisinga. Nederl. tijdschr. geneesk. 99:1907-1911 (June 25) 1955 (In Dutch) [Haarlem, Netherlands].

The author believes that the clinical picture under consideration in this paper should not be designated as the Plummer-Vinson syndrome (dysphagia with glossitis, anemia, splenomegaly, and atrophy in the mouth, pharynx, and esophagus), because the description given by these authors is not quite correct, and they were not the first to describe it. The term late chlorosis with dysphagia likewise is not quite suitable, because the anemia does not have the importance attributed to it. Besides the disturbance in swallowing, which was the starting point of the investigation by the present author, the following symptoms may be present: atrophy of the mucosa of the tongue and of the pharyngeal wall, a small mouth, perlèche (desquamation at the labial commissures), falling out of the hair, brittle nails, leukorrhea, gastric achylia refractory to histamine, iron deficiency, and anemia. For a period of one year the author watched for the disorder in question among the new admissions to his outpatient department. All patients who showed signs of the syndrome complained of difficulties in swallowing. After excluding all who did not have a minimum of seven positive signs, there remained nine patients, all women. A table shows the presence or absence of the various symptoms in these nine women. The average width of the mouth in 94 normal women was 11 cm., and in the 9 women with the syndrome in question it ranged from 8 to 9.75 cm. Brittle nails and falling out of the hair were absent in only one patient each; and smooth tongue and perlèche were lacking in two patients each. Changes in the pharyngeal mucosa were absent in three patients, roentgenologic changes in the pharynx in four patients, and esophagoscopic changes in five patients. Anemia and iron deficiency were each found in only two of the nine patients. Studies failed to reveal any endocrinologic disturbances.

Hyperchlorhydria—Can It Be Controlled Medically? E. Boros. Am. J. Gastroenterol. 24:61-68 (July) 1955 [New York].

Hyperacidity frequently resists medical control. The studies described were pursued for the purpose of ascertaining the degree of neutralization possible by the administration of food and alkali. In patients with digestive complaints accompanied by hyperchlorhydria, the fasting gastric contents are obtained on the morning of examination. Immediately thereafter, four ounces of milk is drunk. The patient is intubated in one half hour and one teaspoonful of calcium carbonate is given with a small amount of water. One half hour later, the contents are again withdrawn. This routine is carried out over a three hour period, making a total of seven gastric specimens. A day or so later, the same patients were again intubated. After the withdrawal of the fasting secretion, a meat sandwich with some water was consumed. Thereafter, at one half hour intervals, calcium carbonate in one teaspoonful doses was administered as previously, and prior to each of these doses the gastric contents were withdrawn. A feature of these tests was the use of the Levin tube, which was introduced through the nostril. Tests were made on 20 patients with duodenal ulcer and on 21 with evidence of gastritis or functional disorders, but without a history or signs of peptic ulcer. The fasting contents in most of the ulcer patients were elevated above normal standards. In only 3 of this group of 20 was there a total and complete neutralization of free acid in all of the specimens extracted. The remainder showed varying degrees of hydrochloric acid in one or all of the specimens. Hyperacidity in the nonulcer cases appeared to yield more rapidly to antacids. As an informative test of gastric secretory response, the routine use of alternating milk and calcium carbonate as described offers better prospects of a diagnostic aid and possible therapeutic guide than the solitary Ewald meal extraction or the Rehfuss method of gastric study. The role that hydrochloric acid has assumed in gastric disease requires further clarification.

Cortisone Test in Hyperfunction of Adrenal Cortex. V. Gilsanz, J. M. Segovia and J. Linazasoro. Rev. clín. españ. 58:17-20 (April 15) 1955 (In Spanish) [Madrid, Spain].

The cortisone test is useful in differentiating adrenal hyperplasia from adrenal neoplasm as cause of the syndrome of adrenal hyperfunction. Evaluation of the results is made from the concentration of urinary 17-ketosteroids before and after the test. A dose of 100 mg. of cortisone is given intramuscularly at intervals of 12 hours for five days. According to reports in the literature, a significant fall in urinary 17-ketosteroids during the test indicates adrenal hyperplasia, whereas the lack of diminution of urinary 17-ketosteroids indicates adrenal neoplasm as cause of the syndrome of adrenal hyperfunction. The authors performed the test in three patients. One patient was a boy 9 years old with macrogenitosomia praecox caused by a large adrenal carcinoma. Two patients were adults with adrenal cortical hyperfunction due to adrenal hyperplasia. The adrenal carcinoma and hyperplasic adrenal glands, one in each patient, were surgically removed and examined. The urinary 17-ketosteroids greatly diminished in the course of the test in the patient with adrenal carcinoma, whereas they did not diminish or diminished but very little in the patients with adrenal hyperplasia. The results diminish the value of the cortisone test for the differential diagnosis between neoplasm or hyperplasia as cause of the syndrome of adrenal hyperfunction.

SURGERY

The Selection of Patients with Mitral Stenosis for Valvular Surgery. L. B. Ellis. Am. Pract. & Digest Treat. 6:1149-1155 (Aug.) 1955 [Philadelphia].

The classification of patients with mitral stenosis in four groups as developed by Ellis follows as far as possible the classification of the New York Heart Association, except that the author's classification, instead of describing the momentary condition of the patient at the time of observation, takes into account the course and progression of the disease. Group 1 includes patients without significant symptoms who may go many years without any disability and, therefore, should not be operated on. Patients in group 2 have some symptoms that are not progressive and do not interfere seriously with their productive activities; although operation can be postponed in these patients, those who will not accept the handicap of their disability may be subjected to mitral valvuloplasty with insignificant operative risk. Patients in group 3 are those in whom operation is urgently indicated. These are patients with progressive disability, chiefly pulmonary, consisting of increasing chronic dyspnea or attacks of acute dyspnea or other pulmonary symptoms. Gross hemoptysis may occur and is of serious import. Chronic congestive symptoms of any magnitude have not developed in these patients, most of whom still do light housework or carry on a sedentary occupation, but only with difficulty. Results of valvulotomy are most gratifying in this group and the operative risk is low. Group 4 consists of the patients with a more advanced cardiac breakdown, mostly chronic or recurrent congestive failure. Although many workers felt that such patients are inoperable, the author has always accepted them for operation and the results have often been surprisingly good, but not so striking as in group 3. The operative risk remains high (about 20%). Special features that affect the operative risk, such as mitral insufficiency, auricular fibrillation, calcification of the mitral valve, associated disease of the aortic valve, tricuspid stenosis, active rheumatic fever, associated disease of any type, and peripheral embolization, are discussed. There is no absolute age limit for the operation. Mitral valvulotomy confers a genuine and usually lasting benefit on properly selected patients with mitral stenosis. Proper selection is primarily the responsibility of the attending physician. The patient should be suffering from symptoms truly caused by the altered hemodynamics secondary to the mitral stenosis. It is important to exclude symptoms of functional nature, anxiety neurosis, or neurocirculatory asthenia. Cardiac catheterization may be helpful in evaluating patients of this type if a decision cannot be reached on clinical grounds. Mitral valvuloplasty is not a proper treatment for patients with predominantly functional symptoms and rarely confers any lasting benefit on them. In patients with mitral stenosis, mitral valvuloplasty has a useful place in their treatment, but is a palliative procedure, frequently a lifesaving palliation, not a cure. The valve function may be considerably improved, but the valves are not returned to normal. Patients who have had mitral valvuloplasty, even if they are rendered symptom-free, are still cardiac patients and should be under medical supervision the rest of their lives.

Surgical Management of Lesions of the Thoracic Duct: The Technic and Indications for Retroperitoneal Anastomosis of the Thoracic Duct to the Hemiazygos Vein. L. A. Brewer III. Am. J. Surg. 90:210-227 (Aug.) 1955 [New York].

Brewer's studies revealed that subdiaphragmatic thoracic duct fistulas are not uncommon and may be responsible for leakage of chyle up into the chest or down into the femoral region of the thigh. On the basis of study of 8 personal cases and a review of hospital records on 16 others, a definite plan of treatment for each region has been made. In this series chyle most often formed in the abdominal and combined abdominothoracic regions; next often in the thoracic region alone, and rarely in the neck and femoral region of the thigh. Trauma and malignant tumor proved to be the most common causes of chylous extravasation, although the number of undiagnosed conditions was large. The location of the fistula of the thoracic duct is as important as the cause in determining the treatment. In the cervical and thoracic regions, simple ligation of the duct is generally successful. Below the diaphragm the treatment of chylous fistulas has been generally neglected. The author gives particular attention to the management of abdominal accumulations of chyle. He discusses the indications for the anastomosis of the afferent thoracic duct (and efferent, at times) to the hemiazygos or azygos veins, and he describes his original technique of this retroperitoneal anastomosis of the thoracic duct to the hemiazygos vein. Aspiration of chyle and/or deep x-ray therapy resulted in a high mortality, while ligation and anastomosis procedures have a low mortality (none in the author's series) and a high rate of cure. The author feels that the extension of surgical treatment to lesions below the diaphragm, as outlined by him, should reduce the mortality and improve the rate of permanent cure.

The Significance of Axillary Node Levels in the Study of Breast Carcinoma. J. W. Berg. Cancer 8:776-778 (July-Aug.) 1955 [Philadelphia].

Histological examination of the axillary lymph nodes removed from patients undergoing radical mastectomy shows that metastasis usually progresses by levels corresponding to the locations of the nodes along the theoretical path of axillary lymphatic drainage from the breast to the mediastinum. Level 1 includes nodes lateral and inferior to the pectoralis minor muscle; level 2 includes those behind it; and level 3 includes the few that are medial and superior to it. The material studied was obtained from the records of operable breast carcinomas treated at Memorial Center for Cancer and Allied Diseases, New York, in 1950—the earliest year in which essentially complete histological studies of axillary nodes were made. The 324 cases finally selected all met the following criteria: (1) the primary cancer had been measured; (2) the axillary nodes had been separated into the three standard levels; (3) the described gross involvement of any level was proved microscopically; (4) all nodes were embedded and examined microscopically at any and every level where gross metastases were not recognized; and (5) a three year follow-up was available and the patient was either living or dead of disease. The material was then grouped by primary size and level of axillary involvement (verified in every case by reexamination of the microscopic sections), and the statistical significance of the resulting distributions was determined by the chi-square test. No statistically significant differences were found in the three year mortality rate between tumors of any given size with no positive nodes and those of the same size in which only the nodes in level 1 were positive. The presence of metastases at level 3, however, in carcinomas of equal size was accompanied by a three year mortality rate five times as high as when the axillary nodes were negative. Level 2, with a three year mortality rate twice that of level 1 and half that of level 3, was apparently a true intermediate. The level of axillary node involvement thus seems to be more closely related to the prognosis of a given case than the size of the primary lesion, but both factors must be considered if an accurate evaluation is to be obtained. Carcinomas with level 2 metastases, for instance, had an over-all three year mortality rate of 26%, but, when the primary cancer was less than 4 cm. in diameter, the mortality was only 17%, while for cancers 4 cm. and over in diameter the mortality rate rose to 47%. The comparable figures for primary cancers less than 3 cm. in diameter were 20% for the over-all three year mortality; 7%, if level 1 only was involved, or substantially the same as the 6% rate found when all nodes were clear; and 56% when the level 3 nodes showed metastases. The pattern of metastatic progression shown by these studies can be used in most cases as a guide in evaluating the possible extension of cancer beyond the limits of the operative field. The fact that 11 patients without axillary node metastases had died of their disease within three years shows that there are other channels of extension for breast cancer besides the main axillary pathway.

Clinical Evaluation of Bilateral Adrenalectomy and Oophorectomy for Advanced Mammary Carcinoma. M. Galante and H. J. McCorkle. Am. J. Surg. **90**:180-188 (Aug.) 1955 [New York].

Bilateral adrenalectomy and oophorectomy was performed in 50 patients. Only patients with objectively demonstrated breast cancer that had advanced beyond the possibility of further surgical or radiation treatment were selected. Usually some form of hormone therapy had been tried. Most of these patients had widespread disease, usually in one or more of the following locations: bones; pulmonary, pleural, or abdominal viscera; lymphatics; and/or local recurrence in the chest wall. The operations frequently were performed on patients confined to bed with debility and pain. Two patients died postoperatively. One of these was jaundiced and had extensive liver metastases; the other was debilitated. With one exception patients with jaundice or extensive liver metastases did poorly, and it is now apparent that the procedure is contraindicated in the presence of either. The follow-up period varied from 1 to 34 months. Twenty-one patients died from 1 to 18 months after the operation. Eighteen patients showed objective improvement; 28 improved subjectively; and 15 failed to show any favorable effect. The longest period of improvement was 28 months. The reduction in size of tumor mass, the healing of ulcerations, the roentgenologic evidence of recalcification of an osteolytic lesion, and the disappearance of pleural effusions and abdominal ascites were interpreted as evidence of improvement. Improvement was most dramatic in bedridden patients with widespread osseous metastases. Cessation of pain usually occurred immediately following operation or within the first 24 hours. Paradoxically this also occurred in the presence of objective evidence of progression of the lesions. Substitution therapy is an important part in the management of adrenalectomized patients.

New Physiologic Concepts Related to the Surgical Treatment of Duodenal Ulcer by Vagotomy and Gastroenterostomy. H. A. Oberhelman Jr. and L. R. Dragstedt. Surg., Gynec. & Obst. **101**:194-200 (Aug.) 1955 [Chicago].

Oberhelman and Dragstedt found that failures in the treatment of duodenal ulcer by vagotomy and gastroenterostomy usually occurred in patients with incomplete division of the vagus nerves or in those in whom there was persistent stasis of food in the stomach. Attention was previously directly to the necessity of dividing all, or nearly all, of the vagus nerves to the stomach in order to abolish the nervous phase of gastric secretion. It is the purpose of the present communication to emphasize the importance of an efficiently functioning drainage procedure whenever gastric vagotomy is performed. It has been demonstrated in animals that complete gastric vagotomy may produce a prolongation of the antrum or humoral phase of gastric secretion because of stasis of food in the stomach. A high-lying gastroenterostomy produces stimulation of gastric secretion in experimental animals, but this does not occur if the gastroenterostomy stoma is located in the antrum near the pylorus. Analysis of failures in the treatment of duodenal ulcer by vagotomy alone and by vagotomy combined with gastroenterostomy disclosed that stasis of food in the stomach and a high-lying gastroenterostomy were important factors in many patients. Experimental and clinical evidence presented indicates that the stoma should be placed in the antrum within 4 or 5 cm. of the pylorus whenever a gastroenterostomy is done along with vagotomy in the surgical treatment of duodenal ulcer.

Cushing's Disease: The Surgical Experience in the Care of 46 Cases. O. Cope and J. W. Raker. New England J. Med. **253**: 119-127 (July 28) and 165-172 (Aug. 4) 1955 [Boston].

Since 1935, 46 patients with adrenal cortical hyperfunction (Cushing's disease) have been cared for at the Massachusetts General Hospital. Suppression of the action of the anterior pituitary gland either by roentgen ray irradiation or by the administration of testosterone has proved successful in two patients only. Surgical treatment has emerged as the consistently practical therapy. The disease is one of overactivity of the adrenal cortex, much as Grave's disease manifests itself by overactivity of the thyroid gland. The anterior pituitary gland appears to bear much the same relation to both diseases. When adrenal cortical hyperfunction is caused by a tumor of the adrenal gland, the problem is one of complete removal of the tumor, leaving the contralateral uninvolved gland. A neoplasm was found in 17 of the other 44 patients. In five it was malignant and all of these died of metastatic disease. The other 12 had benign neoplasms. One died before surgical treatment was carried out; 11 survived the operation and were cured by resection. Twenty-seven patients with bilateral adrenal hyperplasia were treated by subtotal resection. To achieve a consistent therapeutic result in patients with adrenal hyperplasia, it has been found necessary to remove at least 90% of the adrenocortical tissue. In two patients the hyperplasia was associated with multiple nodules, a phase of the adrenal change believed comparable to nodular goiter with hyperthyroidism. Of the 27 patients, 2 died before the surgical intervention; of the 4 patients who underwent limited resection, 2 died of active disease and 2 are living with residual disease; 2 others died after surgical relief of the disease; 19 are living and cured. Cortisone administration facilitated an adequate surgical attack, particularly in patients with hyperplasia of the adrenal cortices. In addition to the use of cortisone to offset acute cortical insufficiency, management of the postoperative phase requires an understanding of an acid nutritional need as healing occurs. There is as yet no medical treatment of adrenal cortical hyperfunction comparable to that of hyperthyroidism with antithyroid drugs or radioactive iodine.

Conversion of Billroth II to Billroth I for the Relief of Postgastrectomy Symptoms. C. Mathewson Jr. Am. J. Surg. **90**: 317-324 (Aug.) 1955 [New York].

Most surgeons agree that postgastrectomy symptoms are less severe and of shorter duration after a gastroduodenal anastomosis of the Billroth I type than after a gastrojejunal anastomosis of Billroth II type, but the Billroth I type of gastroduodenostomy has been limited mostly to patients with gastric ulcer and to those with proximal duodenal ulcer without fixation and with a mobile duodenum. Gastrojejunostomy has become the procedure of choice with many surgeons, because it does not limit the amount of stomach that can be resected and continuity can always be established safely. A number of modifications of the original Billroth I type of gastroduodenal anastomosis have been advocated mainly to accomplish gastroduodenal anastomosis at the time of the original gastric resection, but in recent years it has been advocated as a conversion procedure after gastrojejunal anastomosis has been accomplished and has failed. The author presents the histories of two patients in whom he resorted to this conversion of a Billroth II to a Billroth I procedure. The first patient had a bleeding duodenal ulcer, not relieved by two years of medical treatment, that was subjected to an inadequate gastric resection of the Billroth II type. Soon after operation symptoms of recurrent ulcer developed that later caused severe gastrointestinal hemorrhage. Following resection of the marginal ulcer and an adequate gastric resection, gastrointestinal continuity was reestablished by gastroduodenal anastomosis. Postprandial epigastric distress occurred in the immediate postoperative period, requiring frequent small feedings, but the patient gained weight and strength, was relieved of pain, and, after six months, became asymptomatic. When last seen 22 months after the last operation he was well. In the second patient epigastric pain, vomiting, and severe loss of weight developed shortly after gastrectomy of the Billroth II type and were not relieved by medical treatment, cholecystectomy, revision of the Billroth II type of gastric resection with shortening of the afferent jejunal loop, or vagotomy. Conversion of the gastrojejunostomy to a gastroduodenostomy with interposition of a segment of jejunum resulted in immediate relief of pain and vomiting and initiated a prompt and pronounced gain in weight. Neither of these two patients has been watched long enough to eliminate the possibility of recurrent duodenal or jejunal ulcer. Nevertheless, the dramatic relief of symptoms together with the rapid gain in weight and strength, particularly in the second patient, makes this procedure one well worth consideration for the relief of serious postgastrectomy symptoms.

Experiences with 1,356 Cases of Cholecystitis and Cholelithiasis. B. P. Colcock and J. E. McManus. Surg., Gynec. & Obst. **101:** 161-172 (Aug.) 1955 [Chicago].

Colcock and McManus review the clinical records of 1,356 patients operated on at the Lahey Clinic in Boston for disease of the biliary tract over the four years from 1950 to 1953 inclusive. These may be compared in many details with an earlier group of 1,104 patients reported from this clinic in 1947. The authors feel that all but a few patients with biliary calculi will have some symptoms of their disease. A careful history and the use of the cholecystogram provide accurate means of making the diagnosis in these patients. An increasing number of patients over 60 years of age are being operated on for cholelithiasis. Acute cholecystitis and common duct stones, the major complications of cholelithiasis, occur more frequently in patients over 60, and they frequently coexist. A definitive operation for patients with cholelithiasis can be done only by an accurate demonstration of the cystic duct and its junction with the common duct. Careful exposure of the common duct is necessary to evaluate the need for choledochostomy and should result in fewer rather than more common duct injuries. The authors feel that the number of patients who have had an injury to the common bile duct during the course of a cholecystectomy forms an unsightly blot on the record of modern surgery. Over 500 of these unfortunate individuals have been sent to their clinic because of this complication, and many of these patients ultimately will die as a result of cholcystectomy. The mortality in the authors' group of patients was 1.1%. The principal factors responsible for the deaths were the relatively large number of patients over 60 years of age, extensive disease of the biliary tract as indicated by the presence of jaundice, and the number of patients requiring secondary operations upon the biliary tract. If, in most instances, patients with cholelithiasis were advised to have a cholecystectomy (with choledochostomy when indicated) when their stones are discovered, before complications have developed and before they enter the older age groups, the mortality and the morbidity of biliary tract disease would be improved. The authors feel that surgeons should periodically review their experiences with surgery of the biliary tract, to know the operative mortality, the incidence of complications, and the number of, and reasons for, unsatisfactory results following cholecystectomy.

Feasibility of Partial Hepatic Resection Under Hypothermia. W. F. Bernhard, J. D. McMurrey and G. W. Curtis. New England J. Med. 253:159-164 (Aug. 4) 1955 [Boston].

The effect of cooling on the liver parenchyma alone, and the effect of one hour of ischemia on that organ resulting from afferent hepatic vascular occlusion were studied in dogs in which hypothermia was induced by means of an ice-water bath. Normothermic dogs in which temporary hepatic ischemia was produced by afferent hepatic vascular occlusion and dogs in which hypothermia but no afferent hepatic vascular occlusion was produced, served as controls. Microscopic study of the liver of hypothermic animals with and without afferent hepatic vascular occlusion did not reveal marked alteration in liver architecture except congestion and no residual damage as determined by routine techniques. Dogs subjected to hypothermia had negative results from liver function tests. All normothermic dogs with afferent hepatic vascular occlusion for one hour died, a mortality rate of 100%. Preoperative administration of antibiotics did not alter this result. With the aid of hypothermia, vascular occlusion of the hepatic afferent artery for one hour was carried out successfully, with only two deaths in 27 dogs. There were no deaths in the last 20 consecutive dogs experimented on. No antibiotics were administered. During the one hour period of hepatic ischemia in the dogs subjected to hypothermia, it was possible to perform extensive liver resections in a dry field. Individual suture ligations of empty vessels in portal triads were easily accomplished during the resection, and thus massive compression ligatures were largely unnecessary for hemostasis. It is suggested that the surgical indications for the use of hypothermia be extended to include patients with hepatocellular disease requiring anesthesia and surgical treatment, patients with primary or secondary tumors of the liver who might be successfully treated by resection of the liver, and patients with tumors invading the portal vein who might not otherwise be considered capable of surviving operation.

Isolated Lipodystrophy, a Form of Mesenteric Tumor. J. T. Crane, M. J. Aguilar and O. F. Grimes. Am. J. Surg. 90:169-179 (Aug.) 1955 [New York].

Proper management of mesenteric lesions depends on recognition of the differences between true neoplasms and certain nonneoplastic tumorous processes of the mesentery. These latter conditions include Whipple's disease (intestinal lipodystrophy), the systemic variant of Weber-Christian disease (systemic nodular panniculitis), sclerosing lipogranuloma, tuberculous mesenteric lymphadenitis, and traumatic and pancreatic fat necrosis. The authors observed five cases of mesenteric tumor that differed sufficiently from the foregoing to suggest a unique entity. The lesion was found in five adults, all of whom had either no or only slight symptoms relating to the lesion. In four an abdominal mass was palpable. Diagnosis was established at exploratory laparotomy in three patients, and at postmortem in the remaining two. Grossly, the entire small bowel mesentery was thickened and nodular, rubbery firm, opaque, and mottled grey to yellowish orange. Microscopically, there was diffuse involvement of fat cells, most prominent about the periphery of the fat lobules. In the early stages individual fat cells appeared smaller than normal; their cytoplasm was opaque, granular, and faintly basophilic, and the nucleus was centrally situated. Later, a mild focal lymphocytic infiltration and perilobular condensation of fibrous tissue were apparent. Lipogranulomas developed rarely. It is suggested that initial proliferation of mesenteric fat induces a permanent alteration in fat cell metabolism through either vascular or mechanical embarrassment. The fat cells, particularly those of the relatively more ischemic peripheral portions of the lobules, lose their ability to absorb fat and their lipolytic activity is compromised. These cells undergo the aforementioned structural changes; and, as the process progresses, they may break down, liberating fatty acids and exciting focal inflammation and fibrosis. These mesenteric masses bear certain resemblances to Whipple's disease, Weber-Christian disease with systemic involvement, sclerosing lipogranuloma, or traumatic or pancreatic fat necrosis. They must also be differentiated from true fat tumors, lymphosarcoma, tuberculosis, and other less common conditions. In the living patient diagnosis can be made only at operation. Biopsies should be taken not only of the mesentery but also of the bowel and mesenteric lymph nodes. Surgical resection usually is not feasible, as the process tends to surround the major mesenteric vessels. The prognosis apparently is favorable, for the lesion is slowly progressive and probably self-limited.

The Use of Streptococcal Enzymes in the Immediate Closure of Contaminated Incisions. S. W. Smith. Surg., Gynec. & Obst. **101**:173-184 (Aug.) 1955 [Chicago].

This study was undertaken to determine whether instillation of streptokinase and streptodornase into infected, grossly or potentially contaminated incisions would permit immediate closure of these wounds. The method was used in 73 patients divided among the following categories: ruptured appendixes, colon operations, draining sinuses, posterior wounds of abdominoperineal resections, infected amputation stumps, cholecystectomy incisions, secondary closure of infected incisions, and deep abscesses. Closure of an appendectomy incision was performed in the following manner: the peritoneum, muscle layers, and fascia were closed in the usual manner with running or interrupted chromic catgut. A polyethylene tube and small Penrose drain were laid in the subcutaneous fat overlying the fascia, and the subcutaneous tissue was approximated with fine chromic sutures. Skin closure was then done with silk sutures or clips, leaving a short aperture at the dependent or lateral end for drainage. In the earlier cases, a second polyethylene tube was introduced through the fascia layer down to the transversus fascia. Later it was found that the introduction of one tube into the fat was adequate to prevent infection. Contact for four to six hours between enzyme solution and the interstices of the closed incisions is of great importance, as is complete drainage of the solution and its lysed products after the contact. Instillation in concentrations of 10,000 units of streptokinase and 2,500 units of streptodornase per cubic milliliter was used once daily for periods of four to six hours. This treatment was continued for from 3 to 12 days, but an average of from 5 to 7 days was usually adequate. For the purpose of standardization of technique and reduction of variables, no antibiotic drugs were used with the enzymes in this study. It is likely that addition of the proper antibiotic agent would be of definite topical value and augment the parenteral effects. The use of streptokinase and streptodornase after closure of contaminated incisions favorably influenced the uncomplicated healing in most of the patients. Results have been uniformly favorable, and it is believed that the method constitutes a useful adjunct to careful operative technique and antibiotic therapy in achieving immediate closure of wounds that would usually be left open or secondarily closed. Since the liquefying and irritating properties of streptokinase and streptodornase aid in promoting drainage from closed wounds, improved drainage is possibly an important factor in achieving the results obtained in this study.

Arteriovenous Pulmonary Aneurysm in Osler's Disease (Hereditary Hemorrhagic Telangiectasia). G. Dienemann. München. med. Wchnschr. 97:818-820 (June 24) 1955 (In German) [Munich, Germany].

A man, aged 52, was hospitalized in 1954 because of pulmonary symptoms. Frequent attacks of epistaxis (nosebleed) and bluish-red spots in the face had first been noted in 1942. When in March, 1954, he was subjected to roentgen examinations, he complained of cough, headaches, dyspnea, and frequent attacks of epistaxis. Examination showed cyanosis of skin and mucous membranes, numerous reddish-blue areas of telangiectasia and small varicoid nodules on face, lips, ears, scalp, conjunctiva, palate, malar mucosa, tongue, uvula, and particularly on the nasal mucosa. Percussion revealed no differences in resonance, but vesicular breathing could be heard over both lungs; there were no adventitious sounds, not even after coughing. The patient had clubbed fingers and toes, and small areas of telangiectasia could be seen on the fingertips and under the nails. A survey roentgenogram of the thorax revealed streaks of increased density and some veiled opacity in the left lower lobe. The hilus appeared somewhat wider, and, at the edge of the heart near the anterior ends of the fourth to sixth ribs, there was a deep, sharply defined shadow, which seemed connected with the hilus by a streak. Tomography revealed a wide vascular band leading to the tumor; bronchography, however, revealed no signs of a tumor, and so there arose suspicion of an arteriovenous aneurysm. The kymographic examination revealed pulsation of the tumor. After angiography of the pulmonary artery, the existence of an arteriovenous aneurysm was no longer doubted. Operation revealed, however, that the aneurysm was not in the lower lobe but rather in the retrocardial lingula pulmonis, which is a projection of the upper lobe. Ligation of the dilated vessels and ectomy of the lingular segments was accomplished. Roentgenoscopy of the surgical specimen, which still contained contrast medium, disclosed a second aneurysm at the lowest point of the lingula. This one had never been seen during roentgenoscopy, because it was covered by the shadow of the diaphragm. The patient died seven days after operation from cerebral embolism. The author feels that arteriovenous pulmonary aneurysms should be resected. Regarding the concurrence of arteriovenous pulmonary aneurysm with the relatively rare hereditary hemorrhagic telangiectasia (Rendu-Osler-Weber disease), the author says that some or all of the symptoms of Osler's hereditary hemorrhagic telangiectasia have been found in over half of the 165 patients with arteriovenous pulmonary aneurysm reported in the world literature. It is possible that the concurrence of these two diseases is even more frequent, in that in some cases the symptoms of hereditary hemorrhagic telangiectasia may have been too slight to be recognized. It has been suggested that arteriovenous aneurysm of the lung might be one form of hereditary hemorrhagic telangiectasia. The author feels that arteriovenous pulmonary aneurysms should be searched for in all patients with hereditary hemorrhagic telangiectasia.

Hepatic Necrosis Following Celiac Artery Ligation During Gastric Resection in Man. J. S. Clarke. A. M. A. Arch. Surg. 71:171-177 (Aug.) 1955 [Chicago].

Two innovations in surgical therapy, one for cancer of the stomach and the other for portal hypertension, involve ligation of the main arterial blood supply to the liver. Appleby excised the celiac artery during en bloc resection for gastric carcinoma, and others ligated the hepatic, splenic, and left gastric arteries for advanced cirrhosis of the liver with bleeding esophageal varices. The author performed celiac artery ligation in two patients with noncirrhotic livers during gastrectomy for cancer of the stomach and gave penicillin afterward. Focal infarction was present in the livers at death, on the 8th and 24th postoperative days, respectively, but was not extensive enough to cause liver failure. The two cases are of special significance when considered in the light of recent experimental and clinical findings concerning the effect on the liver of ligation of the hepatic artery. A clear distinction must be made between (a) ligation of the celiac artery or of the hepatic artery near its origin, (b) ligation of the distal hepatic artery or its branches near their entrance into the liver, and (c) ligation of both the proximal hepatic artery and its branches or excision of the entire hepatic artery and its branches to the liver. The consensus of experimental and clinical evidence is that ligation of the proximal hepatic artery is innocuous and that ligation of the distal hepatic artery may, but does not always, cause liver necrosis in man. The two patients reported on had histological evidence of severe and rather extensive damage to a previously normal liver following celiac artery ligation with division of the common hepatic artery proximal to its gastroduodenal branch; this method preserved the superior mesenteric-inferior pancreaticoduodenal-superior pancreaticoduodenal-gastroduodenal-hepatic artery collateral route to the liver. The location of the infarcts far from the dome of the liver and the collateral inflow from the phrenic artery branches may thus indicate the pattern of arterial collaterals available to the liver after the celiac artery is ligated. Although the liver may survive hepatic artery excision alone, superadded portal-vein occlusion causes necrosis. Celiac artery ligation may well have merit in extending surgical therapy for gastric cancer, but this should be done with recognition that circulatory alterations may be produced.

Pyloric Stenosis and Gastric Ulcer. S. P. Rigler, H. A. Oberhelman Jr., P. H. Brasher and others. A. M. A. Arch. Surg. **71:**191-195 (Aug.) 1955 [Chicago].

Dragstedt developed the concept that gastric ulcers are usually due to a hypersecretion of gastric juice of humoral or hormonal origin dependent upon hyperfunction or dysfunction of the gastric antrum, whereas duodenal ulcers are usually due to a hypersecretion of gastric juice of nervous origin. Several attempts have been made to study the interrelation of pyloric obstruction, hypersecretion, and gastric ulcer in experimental animals. In the present study, quantitative collections of gastric secretion from Heidenhain pouches in dogs were secured for long periods of time before and after the production of stenosis at the pylorus. Pyloric stenosis was produced by one of two methods. The first method consisted of wrapping narrow bands of cellophane around the duodenum just distal to the pylorus and securing these just tight enough to hold them in place without actually occluding the lumen of the intestine. The second method involved excision of a diamond-shaped portion of the pyloric musculature comprising most of the anterior wall of the pylorus. The defect thus produced was repaired by approximating the muscularis with several interrupted chromic absorbable (gut) sutures. This operation produced marked stenosis at the pylorus. Postoperatively, collections of gastric juice were again resumed after the animals had demonstrated ability to eat and retain the standard laboratory diet. Experimental pyloric obstruction in dogs produced a marked and long-continued hypersection of gastric juice. This hypersecretion occurred in vagus-denervated Heidenhain pouches, indicating that it is of humoral or hormonal origin. Gastric ulcers developed in one animal subsequent to pyloric stenosis with resultant hypersecretion. The authors comment on the frequent occurrence of gastric ulcer in patients with preexisting duodenal ulcers of long standing with partial healing and pyloric stenosis. It is suggested that these secondary gastric ulcers are brought about by a hypersecretion of gastric juice caused by excessive antrum stimulation from contact with food and from hypermotility.

Measurement of Portal Pressure by Liver Puncture. A. Lemaire and E. Housset. Presse méd. **63:**1063-1064 (July 23) 1955 (In French) [Paris, France].

The authors used Le Go's technique of intrasplenic pressure determination for liver puncture to determine portal pressure in 44 persons. A 17/10 mm. needle is thrust into the liver as for a punch biopsy. When the point has penetrated 1 or 2 cm. into the parenchyma, the cartridge is removed and the needle attached to an aneroid manometer graduated in centimeters of water by means of a piece of rubber tubing filled with a citrated solution. In normal persons the pressure varies from 7 to 13 cm.; the average in 19 subjects was 11 cm. Twenty-five cirrhotic patients with portal hypertension had pressures varying from 27 to 45 cm. The intrasplenic pressures were also determined in these 44 persons, and the two sets of figures jibed well. These procedures are simple, give relatively accurate results, and are reasonably inoffensive to the patient. They should be used in association in order to differentiate intrahepatic and extrahepatic blocks and probably also for the recognition of certain portal and segmental hypertensions.

Total Colectomy in Ulcerative Colitis. L. S. Fallis and J. Barron. West. J. Surg. **63:**452-455 (July) 1955 [Portland, Ore.].

It is now widely accepted that, when surgical intervention is indicated in ulcerative colitis, the ultimate goal of the surgeon should be the extirpation of the entire colon and rectum. Under ideal conditions the three-fold operation of ileostomy, removal of the entire colon, and resection of the rectum may be carried out in one stage. On other occasions graded procedures will be advisable. Ileostomy alone often is a lifesaving measure, but it should be considered only as a preliminary step of a plan that ultimately will culminate in removal of colon and rectum. The authors discuss the indications for the various types of operative procedures and the complications likely to arise therefrom. A technical modification is described that accomplishes removal of the colon and rectum through an abdominal incision. This procedure was carried out on 20 patients without a death. It reduces the loss of blood and the trauma incidental to the classic perineal resection. Convalescence was rapid in all the patients, since there was no large perineal wound left to heal in slowly by granulation tissue. All the complications observed were due to difficulties associated with the ileostomy. These problems still persist, but they have been lessened by such steps as using a separate opening with circular skin incision for the ileostomy and immediate suture of the ileal mucosa to the skin margin, as advocated by Brooke and Turnbull, and finally by the application of the Rutzen bag in the immediate postoperative period.

NEUROLOGY & PSYCHIATRY

Etiology of Cerebral Palsy: An Experimental Approach. E. Denhoff and R. H. Holden. Am. J. Obst. & Gynec. **70:**274-281 (Aug.) 1955 [St. Louis].

A detailed study of 100 patients with cerebral palsy was undertaken, and the apparently significant factors in the history were isolated. The following significant obstetric and neonatal factors were selected for study: midforceps delivery, breech delivery, prolonged pregnancy, prolonged labor, prematurity, the need of oxygen or transfusion, the existence of cyanosis, hypertonicity, and listlessness. These findings were statistically of a significantly greater incidence in the histories of the 100 children with cerebral palsy than in the histories of 504 consecutive ward-births at the Providence Lying-In Hospital in 1949. Utilizing the significant findings previously listed as presumptive causes of brain damage, all the infants in the group of 504 whose histories indicated any of them were chosen for study. There were 36 infants whose histories (prenatal, obstetric, or neonatal) contained one or more of the previously mentioned "significant" findings. Each of these infants was visited by district nurses every three months for a period of two and one-half years. Only 15 of this group could be followed completely throughout the 30 month period. This group of 15 children is designated the "suspicious" group. Each child in this group was studied individually and intensively with a variety of testing instruments and conditions. A random sample of 17 children, closely matched with the 15 for sex, date of birth, and socioeconomic status, served as a control group. They differed from the "suspicious" group only by the absence of any "significant" finding in their history. The suspicious and control histories were compared with those of 20 children with cerebral palsy. Only four (27%) of the suspicious group had abnormalities in physical, psychological, and/or social development when studied at the end of 30 months. Three (18%) of the control group had similar findings. The only factor common to the abnormal children in both groups was a history of previous abortion in the mother. This seems even more striking in view of the fact that abortion is also found in a high percentage (28%) in mothers of children with cerebral palsy. The authors conclude that one important field of research in the etiology of cerebral palsy involves further investigation of reproductive physiology.

Treatment of Children in the Iron Lung. K. Stenger. Klin. Wchnschr. **33:**654-665 (July 15) 1955 (In German) [Berlin, Germany].

Stenger presents observations on 20 children with poliomyelitis who required treatment in the iron lung. The respiratory disturbance was of central origin in one child; 9 children had a purely peripheral respiratory disturbance; and in 10, bulbar, pontine, and encephalitic symptoms were combined. Division into these diverse groups is essential for the proper selection of patients for treatment in the iron lung. The bulbar forms of poliomyelitis are characterized by disturbances in swallowing, which result in the accumulation of viscid sputum in the posterior pharynx, which in turn causes obstruction of the upper air passages. Respiratory disturbances produced in this way may be confused with those that are centrally produced, but clinical examination will reveal their true nature, and measures should be taken that will keep the airway free. The respiratory disturbances of purely central origin often are an ominous sign. The involvement of the substantia reticularis and of the respiratory centers in medulla, pons, and hypothalamus produce severe arrhythmia; breathing may remain superficial despite cyanosis. Spinal paralysis of the respiratory muscles causes rather erratic symptoms, involving at times expiratory and at times inspiratory muscles and, occasionally, sparing certain segments or large groups of muscles. Life is threatened not only as the result of the defective gas exchange but also because inadequate pulmonary ventilation produces atelectasis, with its adverse effects on the circulation, particularly the right side of the heart. Oxygen deficiency results, which produces hypoxemia and cyanosis and gradually leads to disturbances in consciousness, since the myocardium and nervous system are highly susceptible to oxygen deficiency. Insufficiency of the respiratory musculature also involves deficient elimination of carbon dioxide. In describing the technique of treatment with the iron lung, the authors discuss the dangers produced by aspiration, by hypoventilation, and by hyperventilation. The following tests have proved helpful in checking the condition of the patient in the iron lung: determination of carbon dioxide in the alveolar air and of the blood pressure, electrocardiography, and measurement of oxygen saturation of the tissues and of carbon dioxide pressure in the blood. No definite rules can be made with regard to level of negative and positive pressures and frequencies in the iron lung, and various models of the iron lung require individual adjustments. At the onset of iron lung treatment, the authors administer the phenothiazine derivative, Megaphen. This drug facilitates adjustment to the rhythm of the iron lung. Tracheotomy should be done if the muscles of deglutition are paralyzed. In these cases positive pressure breathing by way of the trachea accomplishes about as much or perhaps more than iron lung treatment. In spinal respiratory paralysis, however, the iron lung method is the procedure of choice. Strophanthin is given to patients in the iron lung to prevent cardiac failure, and nikethamide (Coramine) is given for circulatory collapse of central origin.

Electroencephalographic Observations on an Alkaloid of Rauwolfia (Serpasil). S. Colombati and P. Benassi. Gazz. med. ital. **114**:69-72 (April) 1955 (In Italian) [Milan, Italy].

A comparison was made of the electroencephalograms of five healthy persons and 15 patients with epilepsy before and one hour after the intravenous administration of 3 to 5 mg. of Serpasil. A depression of the bioelectric rhythms was found after the administration of the drug in the electroencephalograms of both groups, but it was more marked in those with epilepsy. The alpha rhythm became more evident in the normal persons, whereas in the epileptic patients the altered rhythms were less sharp and more concentrated in foci. The hypersynchronism, which was especially evident in the tracings of patients with psychomotor epilepsy, tended to disappear and in the tracings of these patients the activity of the focal theta rhythms became especially evident. The activity of the drug became manifest on the electroencephalograms 15 to 30 minutes after the intravenous injection, concurrently with the clinical effects. With regard to these, a 5 mg. dose of Serpasil induced in the patient a sense of torpor and a decrease in his state of vigilance. The same dose had also the paradoxical effect of inducing a state of insomnia that was prolonged for several hours but was not accompanied by manifestations of psychic or motor reactions. The variations of the morphology of the bioelectric potentials depended on the modifications in the state of consciousness, which was disturbed by the drug.

Carotid-Artery Ligation in Surgery of the Head and Neck. O. Moore and H. W. Baker. Cancer **8**:712-726 (July-Aug.) 1955 [Philadelphia].

Ligation of either the common or the internal carotid artery may have serious and often fatal sequelae. The major hazard is the occurrence of cerebral damage, which supervened in 40 (45.4%) of 88 consecutive patients subjected to ligation of either the common or the internal carotid artery or both in the course of treatment for various lesions of the head and neck during the period from 1926 to 1952, inclusive. Cancer was the primary disease in 78 (89%); 2 had large, rapidly expanding cavernous hemangiomas, 1, an extensive schwannoma, and the other 7, carotid-body tumors. Carotid-body tumors, which were formerly considered malignant, are now believed to be benign in the great majority of cases, so that excision of the carotid bulb is not justified. Carotid ligation for these tumors has not been performed by the head and neck service of Memorial Center for Cancer and Allied Diseases, New York, since 1948. Complications and deaths following carotid ligation have shown a steady decrease throughout the years, falling from 60% and 55%, respectively, in 20 patients operated on from 1926 to 1937 to 31% and 11% in 35 patients operated on from 1948 to 1952. The importance of thrombosis and embolism as a cause of cerebral complications seems, on the basis of the autopsy findings in this series, to have been greatly overestimated. The three factors upon which every carotid ligation depends for its success are an anatomically efficient collateral pathway through the circle of Willis, the absence of abnormal segmental or diffuse arteriospasm, and the maintenance of sustained normal arterial pressure and blood volume flow. The records of these patients show that hypotension during or after the operation was the one common factor in a significant number of patients suffering major cerebral complications and that, conversely, it occurred in but a small number of those who survived carotid ligation without ill-effect. Only four patients had a significant fall in blood pressure without showing evidence of serious brain injury. More effective prevention of hypotension is believed to be chiefly responsible for the reduction of the over-all mortality from carotid ligation to 11.4% during the last five years covered by this report. Stabilization of the blood pressure at or near the patient's normal level should be accomplished before ligating either the common or the internal carotid artery whenever possible. Relative cerebral hypotension should also be avoided by keeping the patient in a recumbent position until the blood pressure is well stabilized and the danger of fainting has passed. Gradual rising under supervision may have prevented hemiplegia in at least two of these patients.

Oral Metrazol Therapy in Senility (A Preliminary Report). W. B. Suter. Dis. Nerv. System **16**:211-217 (July) 1955 [New York].

Suter was induced to use pentylenetetrazol (Metrazol) in a selected group of 15 senile patients, because of the success that Chesrow and others had reported in 1951 with the oral use of this drug in aged and confused patients. This drug is a restorative, potent analeptic, and central nervous stimulant. Its action is primarily on the higher centers, cortex, thalamus, and medulla, but all parts of the cerebrospinal axis are stimulated to some degree. Metrazol acts particularly on the respiratory, vasomotor, and vagal centers when these centers are depressed either physiologically or by drugs. It stimulates reflex activity of the spinal cord, seems to enhance autonomic activity directly and in response to afferent stimulation, and stimulates nerve impulse transmission across the ganglionic synapses. The 15 men, ranging in age from 67 to 83 years, were selected because all showed marked senile mental disturbances. Nearly all of them were disoriented, confused, often restless, untidy, and quarrelsome. They had been in the institution for years without changes in their personality, so that changes following any form of therapy might be assumed to be the result of the inaugurated treatment. Generally, two tablets of 1.5 grains (0.09 gm.) each were given three to four times a day. Twelve of the 15 patients were definitely improved even after so short a time as four to five weeks. Usually improvement occurred within 10 to 14 days after the therapy was started. Two patients became definitely more alert mentally—one of them even requested permission to go home and was later discharged. Ten became more amenable to ward care, so that restraint could often be dispensed with and the constant aimless wandering about the ward ceased. What can be achieved with Metrazol therapy in mentally less confused patients remains to be seen. Judging from the results so far, it reduces the nursing difficulties inherent in the care of senile patients.

Experiences in Surgical Treatment of Lumbar Disk Herniation. O. Svaar. Acta chir. scandinav. 109:97-105 (No. 2) 1955 (In English) [Stockholm, Sweden].

Svaar presents observations on 157 patients in whom herniation of a lumbar disk had been treated by surgical extirpation. The periods of postoperative observation ranged from six months to seven years. Four of the patients were operated on a second time, from 12 to 30 months after the first operation, three for herniation of another disk and the fourth because cicatricial tissue caused pressure on a nerve root and recurrent radicular pain. As regards the indications for operation, the author says that most patients had a long history of frequent recurrences that had not responded to conservative treatment in the form of prolonged bedrest or the wearing of supports. In three patients the onset had been sudden with nerve root pain, which was followed within a few days by paralysis of muscle groups; it is generally agreed that prognosis is unfavorable in these cases, unless surgery is carried out promptly. The author always carried out Abrodil myelography prior to operation. Intradural tumors of the cauda were found in 2% of the positive myelograms. Myelography is also important for the detection of multiple herniations. Furthermore, the author is convinced that, owing to the routine use of myelography, he has avoided surgery in many patients who should not be operated on. Normally he resorts to surgical treatment two or three days after the myelography. Exposure of the prolapse was usually carried out by partial hemilaminectomy or arcotomy, that is, extirpation of the ligamentum flavum and chiselling off of a small part of the upper and lower edges of the arches. In a few cases total laminectomy was performed. Extradural removal was carried out in all but eight of the patients. After removal of the herniation, the disk was scraped and all degenerated pulpal tissue was removed; this is important in order to avoid recurrence. Thorough hemostasis before closure of the wound is important to prevent subsequent cicatricial root compression. The author never performed spine fusion in connection with the operation. In the follow-up, 27 patients were reexamined by the author, and 120 answered a questionnaire. The results obtained were excellent in 74.8% and good in 13.7%; improvement was obtained in 5.4%; and only 6.1% of the patients are still partially or completely disabled. In view of these results the author feels that lumbosacral fusion is not necessary in all cases of lumbar disk herniation but should be reserved for those few patients in whom the spine fails to stabilize after the disk operation.

Skin Temperature in Relation to Nerve Injuries in Man. H. Shapiro and E. K. Stoner. Angiology 6:227-252 (June) 1955 [Baltimore].

When a peripheral nerve is sectioned, changes occur in both the sudomotor and the vasomotor control of the area the innervation of which has been interrupted. The validity of the use of the skin temperature as a measure of blood flow in the skin has been analyzed by other investigators. The authors of this report studied 25 patients with peripheral nerve injuries of the upper and lower extremities, using skin temperature as an indicator of vasomotor control. The patients were all young men. It was found that vasodilatation may exist for many months after peripheral nerve injury or after surgical sympathectomy. When a peripheral nerve has been completely severed, the cutaneous vessels supplying the autonomous zone are generally dilated as compared with the normally innervated area. Such dilatation exists because of the interruption of the action of the normal vasoconstrictor fibers. These fibers are carried in the major nerve trunks, along with sensory and motor fibers of the voluntary nervous system. In patients in whom all vessels are dilated, the separation of the injured zone from normal zone vessels may be achieved by a cold immersion test, using contralateral extremities. A severe crushing injury may result in motor weakness, yet leave much of the autonomic vasomotor control unimpaired. The change in deep body temperature (as measured with a suitably designed rectal thermocouple) required to bring about vasomotor activity may be as small as 0.1° C (1.8° F). The authors feel that these data are in agreement with the view that the control of peripheral vessel caliber is mediated through autonomic fibers whose activity induces vasoconstriction and that vessel dilatation is largely due to the inhibition or hypofunction of these vasoconstrictor fibers. Sensory loss (to touch and deep pressure) may be coexistent with normal vasomotor response in the affected area.

GYNECOLOGY & OBSTETRICS

Cervical Pregnancy. R. C. Cummin. Lancet 2:68-69 (July 9) 1955 [London, England].

The first pregnancy of a 20-year-old woman had terminated in a normal confinement 20 months before. When she was hospitalized on Oct. 10, 1954 because of vaginal bleeding, she stated that she had had her last menstrual period on July 12, 1954. She had not felt well during this pregnancy owing to continuous vague lower abdominal pain. She had severe backache and nausea in the early hours of the morning before admission. Some four hours later at about six o'clock, during micturition, she passed several large blood clots per vaginam. The bleeding persisted, and arrangements were made for her transfer to hospital. On inspection of the abdomen there was a swelling rising from the pelvis and reaching to the level of the umbilicus. This appeared to be bilocular. The lower swelling was symmetrical resembling a distended bladder and was softer than the upper mass to which it appeared to be attached. Fetal parts were not detected and movements had not been felt. A vaginal examination revealed the cervix to be very full, effaced, and one-finger dilated. In the anterior fornix there was a soft tender swelling and, above and to the left, a firmer mass that resembled an ovarian cyst. The findings pointed to an inevitable abortion with a possible torsion of an ovarian cyst. The woman was treated with Pethidine and Ergometrine and carefully observed. The following day there was a recurrence of abdominal pain. The bleeding was minimal and no products of conception were passed. It was decided to examine the patient under anesthesia and to perform a laparotomy, if necessary. The cervix was found to be two-fingers dilated. The softer pelvic tumor appeared to be the pregnant uterus to which was attached a much firmer swelling that resembled a fundal fibroid. A finger was introduced into the cervical canal and digital evacuation commenced. The placenta was found to be occupying the ballooned-out anterior portion of the cervix. During separation of the placenta the membranes ruptured and a fetus was extracted. At this stage the true nature of the placental implantation was detected. The cervix formed a roughly spherical cavity approximately the size of an orange, with an opening admitting the tip of the finger at its summit. This opening was the internal os with the body of the uterus above it. A blood transfusion was given, and the patient was discharged on the eighth day after operation. Three months later she stated that she had been well and that menstruation had returned. A cervical pregnancy is an unusual example of an ectopic gestation. Nearly all cervical pregnancies terminate in abortions before the 12th week of gestation, but this is not invariable and cervical pregnancies have been carried beyond the 20th week and almost to term. Hemorrhage can be most alarming and sometimes fatal. The condition is seldom recognized prior to operation and no doubt many abort spontaneously and pass unnoticed.

Idiopathic Epilepsy in Pregnancy: Summary of the Literature and Clinical Study of Twenty Patients. J. H. McClure. Am. J. Obst. & Gynec. 70:296-301 (Aug.) 1955 [St. Louis].

During the period 1950 to 1954, when there were a total of 7,379 deliveries, the authors found 20 mothers with typical grand mal attacks and without demonstrable organic changes. In addition to these 20 women, 9 others were seen with grand mal seizures in whom there was an insufficient history and diagnostic work-up for satisfactory evaluation. All patients were seen by a neurological consultant, and all received active treatment immediately upon diagnosis. Six of the 20 patients had their first medical work-up for seizures when they were seen in pregnancy. Treatment consisted of phenobarbital and diphenylhydantoin (Dilantin) sodium. Those patients in whom diphenylhydantoin caused intoxication without control of the convulsions were given either 3-methyl-5,5-phenylethylhydantoin

(Mesantoin) or an experimental anticonvulsant drug with amphetamine. The 20 women were observed during a total of 28 pregnancies. Seven of the women had one or more relatives with convulsions. The frequency of convulsive attacks increased during pregnancy in 11, remained unchanged in 5, and decreased in 4 of the women. Only one of the 28 deliveries was by cesarean section; this was done at eight months' gestation after 12 hours of status epilepticus controlled only by constant intravenous sedation, and after Pitocin infusion and rupture of the membranes had failed to induce labor. Both mother and infant survived. A patient with identical electroencephalographic findings, and also with grand mal seizures well controlled with phenobarbital and diphenylhydantoin, developed uncontrollable status epilepticus at seven and one-half months' gestation and was delivered in a moribund state by cesarean section after induction of labor had failed. She regained consciousness 48 hours later and survived, but her infant died. Idiopathic grand mal epilepsy is without effect on pregnancy except in the patient with status epilepticus; the effects of pregnancy on idiopathic epilepsy are unpredictable. The majority of women in this group had more frequent convulsions during pregnancy.

Influence of a Substance with Ganglioplegic Action (Hexamethonium Bitartrate) on Course of Labor. M. Boscaro and A. Russo. Minerva ginec. 7:410-418 (June 15) 1955 (In Italian) [Turin, Italy].

Hexamethonium bitartrate (Esonium) was administered intravenously by drip infusion in doses of 50 to 125 mg. diluted in a 5% glucose solution to 20 pregnant women at term taken at random, mainly from primigravidas who were admitted to the gynecologic clinic of the University of Turin. The influence of the drug was evaluated on the basis of modifications induced on the uterine contractions, on the length of the dilatation and expulsion stages, and on the arterial pressure. The drug had little effect in the women who received it in the prodromal stage of labor. It did have a favorable effect on the uterine contractility of women in whom labor had already begun at the time the drug was given; in these the stage of dilatation was accelerated. In women with simple or spastic inertia the basal uterine tonus was lowered, the rhythm became regular, the intensity or frequency of the contractions was increased, and a quick delivery followed. Systematic readings of the arterial pressure often revealed a parallelism between the hypotensive effect of the drug and its favorable action on the contractility of the uterus. Hypotension was never so marked as to induce fetal anoxia. The drug did not have a harmful effect on the fetus, nor did it affect the mother's cardiac activity, except for a mild sinus tachycardia, which was shown by electrocardiograms. The drug had no analgesic effect. The administration of 2 units of Pituitrin together with the ganglioplegic was especially favorable in influencing the uterine contractility, very likely because of a synergistic action of the two substances. This combination may make it possible to administer oxytocic hormone of the posterior lobe of the hypophysis even in cases, such as gestosis, in which eventual hypertensive crises could be dangerous. In such instances, the hypertensive action of the hormone would be compensated by the ganglioplegic-induced hypotension.

Heparin-like Action of Follicular Fluid of Human Ovary. G. Vecchietti. Minerva ginec. 7:327-343 (May 31) 1955 (In Italian) [Turin, Italy].

Studies made on samples of fluid taken from apparently healthy or microcystic graafian follicles or from luteofollicular cysts in 63 patients indicated that the fluid of the first two had a high anticoagulant activity. Sometimes this activity was present also in the fluid obtained from the luteofollicular cysts; fluid from these, however, could coagulate spontaneously, or, less frequently, it showed a moderate coagulation-accelerating activity. The studies revealed also the high protein content of the fluid, some electrophoretic characteristics, and the presence of fibrinogen and other coagulation factors. Numerous tests indicated that the anticoagulant activity of the fluid is of a heparin-like type; the intensity varied from patient to patient, and no particular relationship was noted between the intensity of the anticoagulant power and the various phases of the menstrual cycle. The follicular fluid had spontaneous fibrinolytic activity only in some cases of hemorrhagic luteofollicular cyst. The anticoagulant activity of the fluid was found to be the same as that of solutions containing up to 320 gammas of heparin per cubic centimeter. Protamine sulfate inactivated this anticoagulant activity, whereas toluidine blue and thionine potentiated it. An explanation for this peculiar behavior has not been reached. The follicular fluid behaved like heparin in preventing or rendering reversible the erythrocyte agglutination caused by protamine sulfate and in decreasing the platelet adhesiveness. Histochemical studies of the ovary showed a certain parallelism between the intensity of zone chromotropy, the number of mast cells, and the anticoagulant activity of the follicular fluid.

Microbial Flora in Pyosalpingitis. F. Ferraris and G. Papotti. Minerva ginec. 7:436-437 (June 15) 1955 (In Italian) [Turin, Italy].

The authors studied the bacterial and mycotic flora of 18 cases of pyosalpingitis that had been treated at first by prolonged administration of sulfonamides, antibiotics, and nonspecific proteins, and subsequently treated surgically. They found bacteria in eight cases: Micrococcus (Staphylococcus) aureus in two instances, Micrococcus albus in one, diplostreptococcus in one, hemolytic streptococcus in one, Escherichia coli in two, and Mycobacterium tuberculosis in one. M. aureus was found together with Esch. coli in one instance only. Gonococcus, which together with Esch. coli was in the past the commonest finding in this condition, was not found. Nor were there any mycotic micro-organisms.

PEDIATRICS

Epidemic Nephritis at Red Lake, Minnesota. C. R. Reinstein. J. Pediat. 47:25-34 (July) 1955 [St. Louis].

Acute glomerulonephritis, like rheumatic fever, is considered a nonsuppurative complication of infection by the beta hemolytic streptococcus, group A. Whereas rheumatic fever occurs in a relatively constant incidence of about 3%, regardless of serologic type or clinical manifestations of the antecedent infection, nephritis is characterized by an extremely variable attack rate. Although usually sporadic, nephritis may appear from time to time in widespread epidemics, in localized outbreaks, and in families. Investigators have found evidence to suggest that differences in epidemiologic features between rheumatic fever and nephritis may be explained by variations in bacterial factors. It is thought that, although most, perhaps all, types of group A streptococci can produce rheumatic fever, only a few may be nephritogenic. This report is concerned with an outbreak of nephritis on the Red Lake Indian Reservation in northern Minnesota during the summer and fall of 1953. The clinical aspects of this epidemic, which involved 63 cases, were described previously. This paper is concerned with epidemiologic studies in 56 of the patients who had classical acute glomerulonephritis. In six of the seven patients not included in this study the symptoms were subsiding and in the seventh patient, the disorder was complicated by hepatitis. The ages of all but two of the 56 patients ranged from 1 to 8 years, the average being 4 years. In 80% of the patients a unique type of pyoderma was also present. Scarlet fever preceded some cases. To determine the etiological agent, nose and throat cultures were taken from 350 individuals: 216 at Red Lake Reservation (51 nephritic patients, together with contacts and suspects, and a control series of 134 first-grade school children [63 from Red Lake and 71 from Cass Lake]). Pyodermatous lesions of 26 individuals, including 12 with nephritis, also were cultured. Beta hemolytic streptococcus was found in 22.4% of the 216 subjects at Red Lake and in 24.2% of the 63 first-grade school children at Red Lake, but in only 12.7% of those from Cass Lake. Cultures of the pyodermatous lesions showed beta hemolytic streptococci, group A, in 53.8% of the patients. All group A organisms were untypable against known antiserums. Over 70% of the Red Lake population was given prophylactic treatment to control the epidemic. Benzathine penicillin was administered by injection, in a single dose of 600,000 units to each subject less than 15, and 1,200,000 units to those of 15 years or older. Previous to injection, nose and throat cultures were taken from about 500 of the persons who were to receive prophylaxis. A new culture test was made one month later in as many as possible, and 381 paired cultures were thus available. Cultures were positive for the beta hemolytic streptococcus in 20.7% before prophylaxis, and, on reculture, only 1.3% were positive. All positive cultures at the first sampling were negative at the second. Of cultures before prophylaxis, 10.8% were group A, untypable; after prophylaxis, untypable strains of group A were present in only 0.3%. Mass prophylaxis with benzathine penicillin aborted, within two weeks, an epidemic of nephritis apparently caused by a previously unidentified strain of the beta hemolytic streptococcus, group A, with strongly nephritogenic properties. Acute glomerulonephritis, therefore, is a preventable disease.

Electroencephalographic Studies Following Pertussis Immunizations. N. L. Low. J. Pediat. **47**:35-39 (July) 1955 [St. Louis].

The author reviews earlier reports on severe neurological reactions to pertussis vaccine, pointing out that the main neurological symptoms are changes in consciousness varying from marked drowsiness to deep coma and convulsions. Considering the large number of babies that receive active immunizations for pertussis every year, the number of affected children is small but the outlook for these children is so bad that this problem needs more study. The case of a 6-month-old girl infant is presented in whom a convulsion developed 12 hours after she was given 0.5 cc. of alum-precipitated DPT into the right deltoid area. When she was brought back for her second injection one month later she appeared normal and her mother failed to mention the convulsion after the first injection. Twelve hours after the second injection had been made into the left deltoid region, convulsions started for which she was hospitalized. Despite treatment a state of decerebrate rigidity and convulsions continued, and the child died. A study was undertaken to ascertain whether evidence of changed cerebral physiology due to pertussis vaccinations could be found more often than clinically recognizable symptoms. Electroencephalograms were recorded before and after pertussis immunizations in 83 children between the ages of 2¾ and 16 months. Forty-three children had been injected with plain pertussis vaccine containing 30 billion organisms, and the remainder received material containing 15 billion organisms with diphtheria and tetanus toxoid. One of the babies showed marked diffuse slowing after the injection, which disappeared after one week; another showed less marked slowing with fever as the only symptom. This study shows that mild, but possibly significant, cerebral reactions occur in addition to the reported very severe neurological changes. The author feels, however, that the risk of serious neurological complications from pertussis is infinitely greater than the risk from preventive immunizations, so these injections should not be abandoned, but the material should be made safer.

Infants with Organic Heart Defect. C. Bruins. Maandschr. kindergeneesk. **23**:181-191 (June) 1955 (In Dutch) [Leyden, Netherlands].

Bruins reviews the various syndromes resulting from organic heart defects on the basis of observations on 78 children who entered his clinic before they had completed their first year of life. Of this number 38 are alive and 40 are dead. Bruins recommends periodical control examinations with telecardiography and electrocardiography for all infants with a definite precordial murmur. If changes occur or if the child shows signs of cardiac incapacity, a more thorough examination should be made. Sometimes phonocardiography is an adequate means of diagnosis, otherwise angiocardiography or arteriography may be of great help, but these drastic procedures should be kept to a minimum. However, early diagnosis may depend on these examinations, and their prognosis is better than that of a thoracotomy. Provided the anesthesia is in capable hands, infants usually tolerate these examinations well. Early operation is rarely necessary in infants with pulmonary or aortic stenosis. However, if coarctation is associated with considerable cardiac enlargement, preponderance of the left side in the electrocardiogram, and cardiac failure, then early surgical treatment is advisable. When the pulmonary circulation is overburdened and there is no cyanosis, a septal defect is usually present, and early diagnosis and treatment is advisable, particularly when the heart is enlarged, with a big pulmonary conus, pulmonary hyperemia, and hypertension. Infants with a systolic precordial murmur and with impaired ventilation of the left lung are apt to have a large patent ductus arteriosus. Early closure of it may prevent progressive obstructive changes in the arteries of the lung. In the group of children with reduced pulmonary circulation with cyanosis, that is, in those with pulmonary stenosis and septum defect, early operation is indicated only if there are alarming attacks of paroxysmal dyspnea; otherwise it is better to postpone the operation until the children are older. Anoxia with paroxysmal dyspnea may be precipitated in the first months of life by closure of an originally patent ductus. In such cases one may be sure that a pulmonary artery of good caliber is present. The type of operation (anastomosis) depends on the presence of a right-sided or left-sided aortic arch. Increased pulmonary circulation with cyanosis is caused by a variety of anomalies, usually involving transposition of the great vessels. These severely incapacitated children require early examination and diagnosis.

Melena Neonatorum: An Experimental Study of the Effect of the Oral Administration of Blood on the Stools. L. Apt. J. Pediat. **47**:1-5 (July) 1955 [St. Louis].

Many obstetricians and pediatricians believe that grossly bloody stools passed by a newborn infant in the first or second day of life might be the result of the ingestion of maternal blood during labor. In order to determine whether blood introduced into the stomach of a newborn infant could produce grossly bloody stools the author gave to normal infants by gavage from 15 to 40 ml. of blood, taken from adults or the cords of newborn infants. The blood was collected in bottles containing either dry oxalate salts or anticoagulant acid citrate dextrose Solution A (1.2 ml. for each 10 ml. of blood). A relatively large amount of blood (35 to 40 ml.) was necessary to produce grossly bloody stools in the majority of infants. The grossly bloody stools were noted as early as 9 hours and as late as 30 hours after the introduction of blood into the stomach. Grossly bloody stools were passed for 12 to 45 hours. Occult blood (guaiac test) was detected in stools within 7 hours and was present for as long as 87 hours after blood had been given. A similar study was made in older newborn infants who had evacuated their meconium. The amount of blood given was 10 to 20 ml. Much less blood (10 ml.) produced grossly bloody stools. Both grossly bloody stools and occult blood appeared as early as two and one-half hours after the administration of blood. The passage of grossly bloody stools continued for as long as 15 hours. A positive guaiac test for occult blood persisted for a period up to 46 hours. The guaiac test for occult blood was performed on all the stools passed by 35 normal newborn infants during their five day hospitalization. In all instances the test was negative. Although the number of infants in the study was too small to enable one to draw definite conclusions, the results may be of help to the clinician who may assume that the persistence of grossly bloody stools and a positive chemical test for blood indicate that there is continuing hemorrhage into the digestive tract of a newborn infant. The evidence presented indicates that this may not be true.

Protection of Children of Tuberculous Parents. M. Graffar and M. Asiel. Acta tuberc. belg. **46**:182-206 (June) 1955 (In French) [Brussels, Belgium].

A study was made of 166 children from Brussels families in which at least one of the parents had pulmonary tuberculosis. Eighty children had been protected by isolation or hospitalization of the affected parent. The former procedure (Grancher's method) was generally unsuccessful because of the parents' unwillingness to be separated from their children. Only 22 children had had this method applied correctly, and they had received adequate protection from tuberculosis. In 1954, when the average age of the 80 children was 8 years, 65% of them had positive reactions to tuberculin; 12% had had benign tracheobronchial adenopathy; 15% had had primary infections

(Mesantoin) or an experimental anticonvulsant drug with amphetamine. The 20 women were observed during a total of 28 pregnancies. Seven of the women had one or more relatives with convulsions. The frequency of convulsive attacks increased during pregnancy in 11, remained unchanged in 5, and decreased in 4 of the women. Only one of the 28 deliveries was by cesarean section; this was done at eight months' gestation after 12 hours of status epilepticus controlled only by constant intravenous sedation, and after Pitocin infusion and rupture of the membranes had failed to induce labor. Both mother and infant survived. A patient with identical electroencephalographic findings, and also with grand mal seizures well controlled with phenobarbital and diphenylhydantoin, developed uncontrollable status epilepticus at seven and one-half months' gestation and was delivered in a moribund state by cesarean section after induction of labor had failed. She regained consciousness 48 hours later and survived, but her infant died. Idiopathic grand mal epilepsy is without effect on pregnancy except in the patient with status epilepticus; the effects of pregnancy on idiopathic epilepsy are unpredictable. The majority of women in this group had more frequent convulsions during pregnancy.

Influence of a Substance with Ganglioplegic Action (Hexamethonium Bitartrate) on Course of Labor. M. Boscaro and A. Russo. Minerva ginec. 7:410-418 (June 15) *1955* (In Italian) [Turin, Italy].

Hexamethonium bitartrate (Esonium) was administered intravenously by drip infusion in doses of 50 to 125 mg. diluted in a 5% glucose solution to 20 pregnant women at term taken at random, mainly from primigravidas who were admitted to the gynecologic clinic of the University of Turin. The influence of the drug was evaluated on the basis of modifications induced on the uterine contractions, on the length of the dilatation and expulsion stages, and on the arterial pressure. The drug had little effect in the women who received it in the prodromal stage of labor. It did have a favorable effect on the uterine contractility of women in whom labor had already begun at the time the drug was given; in these the stage of dilatation was accelerated. In women with simple or spastic inertia the basal uterine tonus was lowered, the rhythm became regular, the intensity or frequency of the contractions was increased, and a quick delivery followed. Systematic readings of the arterial pressure often revealed a parallelism between the hypotensive effect of the drug and its favorable action on the contractility of the uterus. Hypotension was never so marked as to induce fetal anoxia. The drug did not have a harmful effect on the fetus, nor did it affect the mother's cardiac activity, except for a mild sinus tachycardia, which was shown by electrocardiograms. The drug had no analgesic effect. The administration of 2 units of Pituitrin together with the ganglioplegic was especially favorable in influencing the uterine contractility, very likely because of a synergistic action of the two substances. This combination may make it possible to administer oxytocic hormone of the posterior lobe of the hypophysis even in cases, such as gestosis, in which eventual hypertensive crises could be dangerous. In such instances, the hypertensive action of the hormone would be compensated by the ganglioplegic-induced hypotension.

Heparin-like Action of Follicular Fluid of Human Ovary. G. Vecchietti. Minerva ginec. 7:327-343 (May 31) 1955 (In Italian) [Turin, Italy].

Studies made on samples of fluid taken from apparently healthy or microcystic graafian follicles or from luteofollicular cysts in 63 patients indicated that the fluid of the first two had a high anticoagulant activity. Sometimes this activity was present also in the fluid obtained from the luteofollicular cysts; fluid from these, however, could coagulate spontaneously, or, less frequently, it showed a moderate coagulation-accelerating activity. The studies revealed also the high protein content of the fluid, some electrophoretic characteristics, and the presence of fibrinogen and other coagulation factors. Numerous tests indicated that the anticoagulant activity of the fluid is of a heparin-like type; the intensity varied from patient to patient, and no particular relationship was noted between the intensity of the anticoagulant power and the various phases of the menstrual cycle. The follicular fluid had spontaneous fibrinolytic activity only in some cases of hemorrhagic luteofollicular cyst. The anticoagulant activity of the fluid was found to be the same as that of solutions containing up to 320 gammas of heparin per cubic centimeter. Protamine sulfate inactivated this anticoagulant activity, whereas toluidine blue and thionine potentiated it. An explanation for this peculiar behavior has not been reached. The follicular fluid behaved like heparin in preventing or rendering reversible the erythrocyte agglutination caused by protamine sulfate and in decreasing the platelet adhesiveness. Histochemical studies of the ovary showed a certain parallelism between the intensity of zone chromotropy, the number of mast cells, and the anticoagulant activity of the follicular fluid.

Microbial Flora in Pyosalpingitis. F. Ferraris and G. Papotti. Minerva ginec. 7:436-437 (June 15) *1955* (In Italian) [Turin, Italy].

The authors studied the bacterial and mycotic flora of 18 cases of pyosalpingitis that had been treated at first by prolonged administration of sulfonamides, antibiotics, and nonspecific proteins, and subsequently treated surgically. They found bacteria in eight cases: Micrococcus (Staphylococcus) aureus in two instances, Micrococcus albus in one, diplostreptococcus in one, hemolytic streptococcus in one, Escherichia coli in two, and Mycobacterium tuberculosis in one. M. aureus was found together with Esch. coli in one instance only. Gonococcus, which together with Esch. coli was in the past the commonest finding in this condition, was not found. Nor were there any mycotic micro-organisms.

PEDIATRICS

Epidemic Nephritis at Red Lake, Minnesota. C. R. Reinstein. J. Pediat. 47:25-34 (July) *1955* [St. Louis].

Acute glomerulonephritis, like rheumatic fever, is considered a nonsuppurative complication of infection by the beta hemolytic streptococcus, group A. Whereas rheumatic fever occurs in a relatively constant incidence of about 3%, regardless of serologic type or clinical manifestations of the antecedent infection, nephritis is characterized by an extremely variable attack rate. Although usually sporadic, nephritis may appear from time to time in widespread epidemics, in localized outbreaks, and in families. Investigators have found evidence to suggest that differences in epidemiologic features between rheumatic fever and nephritis may be explained by variations in bacterial factors. It is thought that, although most, perhaps all, types of group A streptococci can produce rheumatic fever, only a few may be nephritogenic. This report is concerned with an outbreak of nephritis on the Red Lake Indian Reservation in northern Minnesota during the summer and fall of 1953. The clinical aspects of this epidemic, which involved 63 cases, were described previously. This paper is concerned with epidemiologic studies in 56 of the patients who had classical acute glomerulonephritis. In six of the seven patients not included in this study the symptoms were subsiding and in the seventh patient, the disorder was complicated by hepatitis. The ages of all but two of the 56 patients ranged from 1 to 8 years, the average being 4 years. In 80% of the patients a unique type of pyoderma was also present. Scarlet fever preceded some cases. To determine the etiological agent, nose and throat cultures were taken from 350 individuals: 216 at Red Lake Reservation (51 nephritic patients, together with contacts and suspects, and a control series of 134 first-grade school children [63 from Red Lake and 71 from Cass Lake]). Pyodermatous lesions of 26 individuals, including 12 with nephritis, also were cultured. Beta hemolytic streptococcus was found in 22.4% of the 216 subjects at Red Lake and in 24.2% of the 63 first-grade school children at Red Lake, but in only 12.7% of those from Cass Lake. Cultures of the pyodermatous lesions showed beta hemolytic streptococci, group A, in 53.8% of the patients. All group A organisms were untypable against known antiserums. Over 70% of the Red Lake population was given prophylactic treatment to control the epidemic. Benzathine penicillin was administered by injection, in a single dose of 600,000 units to each subject less than 15, and 1,200,000 units to those of 15 years or older. Previous to injection, nose and throat cultures were taken from about 500 of the persons who were to receive prophylaxis. A new culture test was made one month later in as many as possible, and 381 paired cultures were thus available. Cultures were positive for the beta hemolytic streptococcus in 20.7% before prophylaxis, and, on reculture, only 1.3% were positive. All positive cultures at the first sampling were negative at the second. Of cultures before prophylaxis, 10.8% were group A, untypable; after prophylaxis, untypable strains of group A were present in only 0.3%. Mass prophylaxis with benzathine penicillin aborted, within two weeks, an epidemic of nephritis apparently caused by a previously unidentified strain of the beta hemolytic streptococcus, group A, with strongly nephritogenic properties. Acute glomerulonephritis, therefore, is a preventable disease.

Electroencephalographic Studies Following Pertussis Immunizations. N. L. Low. J. Pediat. **47**:35-39 (July) 1955 [St. Louis].

The author reviews earlier reports on severe neurological reactions to pertussis vaccine, pointing out that the main neurological symptoms are changes in consciousness varying from marked drowsiness to deep coma and convulsions. Considering the large number of babies that receive active immunizations for pertussis every year, the number of affected children is small but the outlook for these children is so bad that this problem needs more study. The case of a 6-month-old girl infant is presented in whom a convulsion developed 12 hours after she was given 0.5 cc. of alum-precipitated DPT into the right deltoid area. When she was brought back for her second injection one month later she appeared normal and her mother failed to mention the convulsion after the first injection. Twelve hours after the second injection had been made into the left deltoid region, convulsions started for which she was hospitalized. Despite treatment a state of decerebrate rigidity and convulsions continued, and the child died. A study was undertaken to ascertain whether evidence of changed cerebral physiology due to pertussis vaccinations could be found more often than clinically recognizable symptoms. Electroencephalograms were recorded before and after pertussis immunizations in 83 children between the ages of 2¾ and 16 months. Forty-three children had been injected with plain pertussis vaccine containing 30 billion organisms, and the remainder received material containing 15 billion organisms with diphtheria and tetanus toxoid. One of the babies showed marked diffuse slowing after the injection, which disappeared after one week; another showed less marked slowing with fever as the only symptom. This study shows that mild, but possibly significant, cerebral reactions occur in addition to the reported very severe neurological changes. The author feels, however, that the risk of serious neurological complications from pertussis is infinitely greater than the risk from preventive immunizations, so these injections should not be abandoned, but the material should be made safer.

Infants with Organic Heart Defect. C. Bruins. Maandschr. kindergeneesk. **23**:181-191 (June) 1955 (In Dutch) [Leyden, Netherlands].

Bruins reviews the various syndromes resulting from organic heart defects on the basis of observations on 78 children who entered his clinic before they had completed their first year of life. Of this number 38 are alive and 40 are dead. Bruins recommends periodical control examinations with telecardiography and electrocardiography for all infants with a definite precordial murmur. If changes occur or if the child shows signs of cardiac incapacity, a more thorough examination should be made. Sometimes phonocardiography is an adequate means of diagnosis, otherwise angiocardiography or arteriography may be of great help, but these drastic procedures should be kept to a minimum. However, early diagnosis may depend on these examinations, and their prognosis is better than that of a thoracotomy. Provided the anesthesia is in capable hands, infants usually tolerate these examinations well. Early operation is rarely necessary in infants with pulmonary or aortic stenosis. However, if coarctation is associated with considerable cardiac enlargement, preponderance of the left side in the electrocardiogram, and cardiac failure, then early surgical treatment is advisable. When the pulmonary circulation is overburdened and there is no cyanosis, a septal defect is usually present, and early diagnosis and treatment is advisable, particularly when the heart is enlarged, with a big pulmonary conus, pulmonary hyperemia, and hypertension. Infants with a systolic precordial murmur and with impaired ventilation of the left lung are apt to have a large patent ductus arteriosus. Early closure of it may prevent progressive obstructive changes in the arteries of the lung. In the group of children with reduced pulmonary circulation with cyanosis, that is, in those with pulmonary stenosis and septum defect, early operation is indicated only if there are alarming attacks of paroxysmal dyspnea; otherwise it is better to postpone the operation until the children are older. Anoxia with paroxysmal dyspnea may be precipitated in the first months of life by closure of an originally patent ductus. In such cases one may be sure that a pulmonary artery of good caliber is present. The type of operation (anastomosis) depends on the presence of a right-sided or left-sided aortic arch. Increased pulmonary circulation with cyanosis is caused by a variety of anomalies, usually involving transposition of the great vessels. These severely incapacitated children require early examination and diagnosis.

Melena Neonatorum: An Experimental Study of the Effect of the Oral Administration of Blood on the Stools. L. Apt. J. Pediat. **47**:1-5 (July) 1955 [St. Louis].

Many obstetricians and pediatricians believe that grossly bloody stools passed by a newborn infant in the first or second day of life might be the result of the ingestion of maternal blood during labor. In order to determine whether blood introduced into the stomach of a newborn infant could produce grossly bloody stools the author gave to normal infants by gavage from 15 to 40 ml. of blood, taken from adults or the cords of newborn infants. The blood was collected in bottles containing either dry oxalate salts or anticoagulant acid citrate dextrose Solution A (1.2 ml. for each 10 ml. of blood). A relatively large amount of blood (35 to 40 ml.) was necessary to produce grossly bloody stools in the majority of infants. The grossly bloody stools were noted as early as 9 hours and as late as 30 hours after the introduction of blood into the stomach. Grossly bloody stools were passed for 12 to 45 hours. Occult blood (guaiac test) was detected in stools within 7 hours and was present for as long as 87 hours after blood had been given. A similar study was made in older newborn infants who had evacuated their meconium. The amount of blood given was 10 to 20 ml. Much less blood (10 ml.) produced grossly bloody stools. Both grossly bloody stools and occult blood appeared as early as two and one-half hours after the administration of blood. The passage of grossly bloody stools continued for as long as 15 hours. A positive guaiac test for occult blood persisted for a period up to 46 hours. The guaiac test for occult blood was performed on all the stools passed by 35 normal newborn infants during their five day hospitalization. In all instances the test was negative. Although the number of infants in the study was too small to enable one to draw definite conclusions, the results may be of help to the clinician who may assume that the persistence of grossly bloody stools and a positive chemical test for blood indicate that there is continuing hemorrhage into the digestive tract of a newborn infant. The evidence presented indicates that this may not be true.

Protection of Children of Tuberculous Parents. M. Graffar and M. Asiel. Acta tuberc. belg. **46**:182-206 (June) 1955 (In French) [Brussels, Belgium].

A study was made of 166 children from Brussels families in which at least one of the parents had pulmonary tuberculosis. Eighty children had been protected by isolation or hospitalization of the affected parent. The former procedure (Grancher's method) was generally unsuccessful because of the parents' unwillingness to be separated from their children. Only 22 children had had this method applied correctly, and they had received adequate protection from tuberculosis. In 1954, when the average age of the 80 children was 8 years, 65% of them had positive reactions to tuberculin; 12% had had benign tracheobronchial adenopathy; 15% had had primary infections severe enough to necessitate a long period of bedrest; and 12% had lesions of secondary or tertiary tuberculous dissemination. Two children were dead of tuberculous meningitis. Half this group had spent time in preventoriums or sanatoriums amounting to more than a year per child. The second group, i. e., 86 children, had been given BCG vaccination. It was strictly comparable to the first group with regard to socioeconomic background, environment, and chance for tuberculous contact. For purposes of comparison, the 140 children from the entire group who had not reached the age of 10 were chosen. Of these, 85 had been vaccinated and 55 had not. Tuberculous morbidity was four times less in the vaccinated children than in the nonvaccinated. If only those lesions severe enough to require a long period of bedrest are considered, the morbidity was seven times less. No secondary or tertiary lesions were found among the BCG-vaccinated children, while in the control group 9% had miliary or meningeal tuberculosis. Thus it is once again proved that BCG confers remarkable protection, especially from the severer forms of tuberculosis. This protection is not absolute, and other precautions for the safety of children in contact with tuberculars must not be abandoned.

Endocardial Fibroelastosis. *E. G. St. John and T. A. Cope Jr.* Am. J. Roentgenol. **74**:39-45 (July) 1955 [Springfield, Ill.].

Endocardial fibroelastosis is one of the common types of fatal heart disease in infants, but its cause is unknown. It seems to be congenital rather than inflammatory and is probably based on anoxia. The clinical features fall into two principal patterns. The first is found in infants, usually less than 6 months of age, who have apparently been in good health until a sudden attack of severe dyspnea, cough, vomiting, and tachycardia appear. Those in the second group have episodes of mild dyspnea, with refusal to take food, vomiting, failure to gain weight, and recurrent pulmonary infections. Murmurs are usually absent. The fatal attack in these children commonly occurs within two years. Cyanosis is not a constant finding, except in patients in whom the aortic valve is affected. Involvement of the aortic valve is an ominous sign. Cardiac enlargement, often of a globular type, has been found in almost all the reported cases, almost always on the left side and principally in the left ventricle. The responsibility for early diagnosis rests heavily on the roentgenologist, but it should be remembered that the diagnosis can seldom be established with certainty during life. The characteristic cardiomegaly and the hyperplasia of the fibrous and elastic components of the endocardium were shown in the roentgenograms and demonstrated at autopsy in two infants studied at the Binghamton City Hospital. Their clinical course was marked by attacks of dyspnea and cyanosis, eventually ending in death.

Escherichia Coli O 127:B_8, a Pathogenic Strain Causing Infantile Diarrhea: I. Epidemiology and Bacteriology of a Prolonged Outbreak in a Premature Nursery. *C. S. Stulberg, W. W. Zuelzer, A. C. Nolke and A. L. Thompson.* A. M. A. Am. J. Dis. Child. **90**:125-134 (Aug.) 1955 [Chicago].

Bacteriological, epidemiological, and clinical data are presented on an extensive epidemic of diarrhea of newborn infants that occurred in the premature nursery of the Children's Hospital of Michigan and was caused by a newly described pathogen Escherichia coli O 127:B_8. The epidemic, which involved a total of 60 cases over a period of four months, was characterized by a cyclic series of flare-ups. Because stool specimens and daily cultures of the predominant organisms were systematically saved from each infant until the identity of the causative agent could be established, it became possible, with a specific antiserum, to make a complete study of the epidemic, using this organism as an etiological tracer. The bacteriological basis for the cyclic pattern of the epidemic then became apparent. Each cycle began with a build-up period during which cross infections and incubation stages were occurring. The incidence of diarrhea increased slowly at first and then rose sharply to a peak. Each sick infant exhibited virtually pure cultures of E. coli O 127:B_8 in its stools. Treatment of the sick infants with neomycin resulted in prompt individual improvement and in a sharp decline of the outbreak, which coincided with the disappearance of E. coli O 127:B_8 from the stools. With the cessation of the antibiotic treatment, a new cycle began. There was an almost immediate resurgence of the pathogenic organisms in the stools, resulting invariably in asymptomatic carriers, a few clinical relapses, and an increase in new diarrhea cases. Control of the epidemic was not accomplished until all infants, whether they had diarrhea or not, were simultaneously placed on neomycin therapy, thus eliminating the organisms from the nursery. Regarding control of pathogenic coli infections on infant units of any type, it is evident that adequate bacteriological diagnosis is a prerequisite. Rapid identification of the offending organism either by the institutional laboratory or by a centralized service such as a public health laboratory is essential. For the strains thus far shown to be associated with diarrheal disease, polyvalent serums can provide a rapid screening test, which can be followed by exact identification with type-specific serum and bacteriological analyses. When an as yet unknown strain is involved, the preparation of an antiserum against the predominant organisms and the preservation of current stool specimens is imperative. At the same time a trial with a suitable antibiotic is clearly indicated but should not be restricted to the obviously affected patients. Every patient in the unit should receive prophylactic treatment either until discharge or until bacteriological identification and control of the organisms has been achieved. Diarrhea caused by pathogenic E. coli should be made a reportable communicable disease.

Ulcerative Colitis in Children: Observations in Selected Patients. J. B. Kirsner, H. F. Raskin and W. L. Palmer. A. M. A. Am. J. Dis. Child. **90**:141-152 (Aug.) 1955 [Chicago].

Ulcerative colitis in children is not uncommon and follows a course similar to that in adults. The disease should be suspected in patients with unexplained fever, anemia, and abdominal pain, with or without bloody diarrhea. Four selected cases in two boys and two girls between the ages of 10 and 16 years are described in detail, illustrating certain psychiatric and therapeutic aspects, as well as various complications such as rectovaginal fistula, electrolyte disturbances, and amyloidosis with adrenal insufficiency. The clinical course in these patients again emphasizes the importance of prolonged, comprehensive medical treatment, skillful psychotherapy, the adjunct value of steroid therapy, and, in one patient, the lifesaving role of surgery.

Insufflated Pulmonary Tuberculous Cavitation in Infants. J. Albós Martínez and O. Cassassas. Med. clín. **24**:352-354 (May) 1955 (In Spanish) [Barcelona, Spain].

Streptomycin and isoniazid when administered simultaneously to infants with pulmonary tuberculosis and cavitation cause complete elimination of parenchymal or intracavitary exudates. However, the combined treatment may transform the lesions or cavities into pulmonary air cysts with extremely fine walls. The fatal complications that follow the development of air cysts are insufficient arterialization of blood, acute displacement of the mediastinum, and cachexia. The subjects of this report were two infants 8 and 9 months old respectively. They were admitted to the hospital with acute bronchitis that was controlled with penicillin. The Mantoux test became positive and tubercle bacilli were identified in the gastric contents. One of the patients had a tracheobronchial adenopathy. A few months after the patients had been discharged from the hospital, they were brought back with bronchopneumonia that did not respond to penicillin or sulfonamides. Roentgen examination of the chest of the patients showed exudative pulmonary lesions in one and pulmonary cavitation with an insufflated cavity in the other. The combined streptomycin-isoniazid treatment was promptly followed by apparent clinical improvement and cleaning of exudates from lesions and of cavities, all of which became transformed into air cysts. The insufflated cavity of one of the patients became so large an air cyst that it caused displacement of the spleen and acute deviation of the mediastinum. The large air cyst suddenly ruptured into the pleura causing acute spontaneous pneumothorax. The general state of health rapidly deteriorated after appearance of air cysts in both patients. Both patients died and the necropsies showed multiple air cysts of various sizes of typical aspect with thin layers of epithelium and also minimal parenchymal spots of miliary tuberculous lesions.

Deforming Osteochondrosis of the Tibia (Blount) in Children. J. E. Enklaar. Maandschr. kindergeneesk. 23:235-238 (July) 1955 (In Dutch) [Leyden, Netherlands].

Enklaar is concerned with the tibial osteochondrosis that causes bowlegs, pointing out that Blount and Langenskiöld studied this disorder under the term tibia vara in 17 cases. The author objects to this term, because it might create the impression that the lesion is always in the medial half of the knee, whereas lateral localization is possible, and this would lead to the development of genu valgum (knock knee). He observed two children with knock knees in whom roentgenography revealed the typical picture of osteochondrosis in the lateral half of the proximal ends of the tibia. He feels that, depending on the localization of the osteochondrotic process, the terms medial or lateral osteochondrosis of the tibia should be used. No evidence of tuberculosis or rickets is found in children with this disorder, but obesity generally exists and the defect usually becomes evident between the first and second years of life, soon after the child begins to stand and to walk. The author presents the history of a 3-year-old girl with nonrachitic bowlegs. He stresses the importance of roentgenologic examination, since without it the bowlegs may be assumed to be of rachitic origin. Children between 1 and 6 years of age, who have knock knees or bowlegs should always be subjected to roentgen examination so that the osteochondrotic process will be discovered and proper therapeutic measures may be taken. In children under 6 years of age, progressive correction with conservative measures is generally preferred, except when the tibial deformity is severe, in which case osteotomy may be necessary. In children over 6 years of age this operation is usually necessary.

Studies on Agammaglobulinemia: II. Failure of Plasma Cell Formation in Bone Marrow and Lymph Nodes of Patients with Agammaglobulinemia. R. A. Good. J. Lab. & Clin. Med. 46:167-181 (Aug.) 1955 [St. Louis].

Clinical, pathological, and hematological studies in human beings have provided evidence that links plasma cell formation to the elaboration of gamma globulin and the synthesis of antibody. Patients have been observed whose principal abnormality is a deficiency of both antibody and gamma globulin production and whose disorder has been designated as agammaglobulinemia. This disease occurs in a congenital, sometimes familial, form, which probably represents an inborn error of metabolism transmitted as a sex-linked recessive trait, or it may occur in an acquired form that may appear at any age and in either sex. The author compared the bone marrow and lymph nodes of four patients with agammaglobulinemia with similar tissues from normal persons and found a deficiency of plasma cells in the tissues of patients with agammaglobulinemia. Normal children showed plasmacytosis of the bone marrow and regional lymph nodes after stimulation with antigens, and there was evidence that plasmacytosis of the draining node in normal children is greater during the anamnestic reaction than during the primary response to antigen. Lymph nodes of patients with agammaglobulinemia tend to be small and poorly developed and have a relatively thin cortex with few germinal centers. Evidence is presented indicating that lymph nodes and bone marrows of patients with agammaglobulinemia are characterized by failure to develop plasma cells and secondary follicles in response to both primary and secondary antigenic stimulation. The author feels that these observations support the concept that plasma cells are directly involved in the sequence of events resulting in the formation of antibodies and gamma globulin and the liberation of these proteins into the circulating blood.

DERMATOLOGY

The Significance of a Positive L. E. Phenomenon. R. S. Weiss and S. Swift. A. M. A. Arch. Dermat. 72:103-112 (Aug.) 1955 [Chicago].

The authors studied the blood of 350 patients. They found L. E. cells only when lupus erythematosus was the leading or a possible diagnosis, but they also observed certain other changes in some of these bloods, such as the so-called tart cell, a histiocyte that has engulfed a dead or damaged white cell. The latter is usually a lymphocyte, and it retains some of its nuclear outline and chromatin pattern. It is often difficult to distinguish between tart cells and true L. E. cells. The difference lies in the fact that the true L. E. cell is a homogeneous smoky body, completely without nuclear structure, while the inclusion body in the tart cell retains an outline and some chromatin network (nucleophagocytosis). The authors gained the impression that these tart cells may be precursors or perhaps abortive forms of L. E. cells. While the presence of these cells should not be regarded as evidence of the L. E. phenomenon, they are suspicious, and repeated tests should be made. The authors found no L. E. cells in blood specimens from patients with penicillin hypersensitivity, although, since lupus erythematosus is regarded as possibly a hypersensitivity phenomenon, L. E. cells might be found in severe and long-standing penicillin reactions. The production of the L. E. phenomenon by hydralazine (Apresoline) is highly interesting. The L. E. phenomenon was observed in 3 of 16 blood preparations made in patients receiving hydralazine, in whom some symptoms had developed in response to the drug. L. E. cells and other stigmas of the L. E. phenomenon were found in patients with rheumatoid arthritis often enough for this disease to be considered as a possible manifestation of lupus erythematosus. Although discoid lupus erythematosus can become disseminated, the authors found L. E. cells in only 2 of 55 patients with discoid lupus erythematosus. They feel that reports about the discovery of L. E. cells in fungus diseases may be due to the fact that nucleophagocytosis (tart cells) were mistaken for L. E. cells, they themselves having done this before a strict differentiation had been made between the two. They conclude that, while positive tests have been reported in a number of other diseases, the presence of clumping rosettes and the typical L. E. cell may be taken as conclusive evidence of systemic lupus erythematosus. The test is practically always positive at some time during the course of lupus erythematosus. Its value, however, is greatest in the borderline cases, and, if the L. E. cell is found in certain rheumatic states, the burden of proof lies on him who would say that the condition is not systemic lupus erythematosus. All patients with rheumatoid arthritis should have frequent L. E. tests performed, especially if they show symptoms suggestive of lupus erythematosus such as mild bouts of fever, pain, reversal of the albumin/globulin ratio, microscopic evidence of kidney involvement, and increased sedimentation rate. The fact that the authors found one or two L. E. cells in the blood of patients who did not seem ill, coupled with the fact that the hydralazine syndrome seems to be reversible, makes them think that perhaps lupus erythematosus is not always a fatal disease.

Aminopterin for Psoriasis. R. B. Rees, J. H. Bennett and W. L. Bostick. A. M. A. Arch. Dermat. 72:133-143 (Aug.) 1955 [Chicago].

Aminopterin (4-amino-pteroylglutamic acid) is known to exert a favorable effect on the lesions of psoriasis, but it is a dangerous drug, since the range between beneficial and toxic doses is narrow. The authors used moderate doses of Aminopterin in 171 ambulatory patients with psoriasis, hoping to clear or improve the lesions of psoriasis without producing too high an incidence of toxic effects. All of the patients had received one or several forms of conventional therapy, usually over a period of many years. The patients were not selected, except that treatment was not given during pregnancy, because the drug has an abortifacient effect. The group included 94 males and 77 females. The average duration of the disease was 10 years. Several treatment schedules were tried. It was found that when Aminopterin was used in a dose of 0.5 mg. daily by mouth, not exceeding 6 mg. over a period of 12 to 20 days, clearing or great improvement of psoriatic lesions occurred in approximately 80% of the patients with an 8% incidence of toxic reactions. The toxic effects were slight and transitory on this schedule. Relapses, however, were frequent, and usually occurred within from two weeks to two months. It remains to be determined whether the lesions of psoriasis can be completely suppressed by repeating the small doses of Aminopterin from time to time and also whether this repeated administration will have toxic effects. There is no evidence of ill-effect, hematological or otherwise, in a few patients treated with from 30 to 50 mg. over a six months' period with the aforementioned dosage schedule. When more than 0.5 mg. is given daily, the toxic effects are more frequent and severe.

Developments in Rotary Abrasive Technics for Removing Acne Scars and Other Cosmetic Defects. J. J. Eller. New England J. Med. **253**:11-14 (July 7) 1955 [Boston].

According to Eller the following types of rotary abrasives have been used for the removal of pitted acne scars and of other cosmetic defects: heatless stones, steel burrs, steel-wire brushes, and diamond and ruby fraises powered by high-speed rotary motors. He previously reported observations on 200 patients in whom he used rotary steel-wire brushes with a velocity of 12,000 rpm under ethyl chloride refrigeration anesthesia in which good cosmetic results were obtained. This technique had certain disadvantages. Recently he has been using the Schreus high-speed apparatus (30,000 rpm) with heatless stones, steel burrs, and diamond and ruby fraises in hundreds of cases, with most satisfactory results. He found that the heatless stone and diamond and ruby fraises, powered by a high-velocity motor capable of 30,000 rpm, gave a much smoother grinding, a more satisfactory dermal abrasion, and better cosmetic results than the steel-wire brushes, driven by lower-velocity motors of 12,000 rpm. When the high-speed (Schreus) grinders are used it is not necessary to harden the skin, and therefore it is possible to use procaine-Cobefrin local anesthesia. With this anesthetic the field is always visible and not disguised as by freezing, which is most advantageous when small lesions, facial contours, linear scars, pigmentations, and tattoo marks are being abraded. In cases of dermal abrasion in which refrigeration anesthesia is desirable, Freon Mixture is preferable to ethyl chloride, since it is nonexplosive and nontoxic.

UROLOGY

Bilateral Total Adrenalectomy in Diabetics with Degenerative Vascular Disease. J. W. Headstream and J. T. Wortham. J. Urol. **74**:1-7 (July) 1955 [Baltimore].

Patients with diabetes mellitus have a tendency to premature development of arteriosclerosis. Microaneurysms of the retinal arterioles are usually the earliest manifestations of diabetic vascular degeneration. Later, the changes are often greatest in the kidneys. One stage of this renal vascular deterioration was defined by Kimmelstiel and Wilson as intercapillary glomerulosclerosis. The advanced stage of renal deterioration is characterized by hypertension, vascular accidents, nitrogen retention, proteinuria, hypercholesteremia, eventual renal failure, and death. Previous publications provide evidence that altered adrenal cortical function resulting from complications of diabetes may well be responsible for arteriolar degeneration. There is evidence that insulin hypoglycemia is a stimulant of adrenal cortical secretion, but rapidly rising blood sugar content also stimulates the adrenal cortex. It may be assumed that, when the blood sugar fluctuates widely, the adrenal cortical secretory functions also fluctuate greatly. The authors have felt that diabetic patients with vascular disease might benefit by stabilization of their adrenal cortical functions. Since this cannot be accomplished by medical means, bilateral total adrenalectomy followed by constant maintenance doses of the vital adrenal cortical steroids was attempted. Seven diabetic patients were studied before and after bilateral adrenalectomy. After baseline studies and regulation of the diabetes, all patients were prepared with 300 mg. of cortisone acetate for three days prior to surgery, and no vascular collapse or shock resulted during or after operation. After the surgical intervention the cortisone dose was gradually reduced. The results obtained suggest that vascular deterioration of the type seen in diabetes may involve abnormal adrenal cortical function. "Brittleness" and increasing insulin requirements point to functional impairment of the adrenals. If adrenalectomy is to be successful, it should be done fairly early in the arteriolar degenerative processes. There is evidence that it is a practical and hopeful therapy in properly selected patients.

The Results of Ureteral Transplantation to a Rectosigmoidal Pouch. W. F. Melick and J. J. Naryka. J. Urol. **73**:47-58 (July) 1955 [Baltimore].

Melick and Naryka combine ureteral transplantation into a rectosigmoidal pouch and proximal colostomy in an effort to produce a fecal-free urinary reservoir as a substitute for the bladder. Melick had participated in a preliminary report on this method. In this paper the authors present the histories of six patients in whom they employed the method successfully. It proved to have the following advantages: urinary continence is preserved by utilizing the rectal sphincter; urinary obstruction and infection are eliminated by the diversion of the fecal stream; and the danger of fecal fistula has been eliminated. Technically the procedure is easier than in other described "surgical artificial bladders" and more quickly performed, which should result in a lower operative mortality. Hyperchloremic acidosis has been no problem except in one patient in whom there was a preexisting chronic pyelonephritis and when there is incomplete emptying of the rectosigmoid. The only disadvantage is that the patient does have a colostomy that requires specialized daily care. The authors feel that from the esthetic point of view, one might question whether it is better to have a colostomy with urinary control or fecal control with a Rutzen bag constantly collecting urine. Both groups of patients have to make adjustments and concessions to their altered physiology and many in each group have done so and returned to their jobs.

Methods for the Elimination of Errors in Serum Acid Phosphatase Determinations. M. B. Ozar, C. A. Isaac and W. L. Valk. J. Urol. **74**:150-157 (July) 1955 [Baltimore].

The authors show that, since the introduction of serum acid phosphatase determinations in 1938 by Gutman and Gutman, much has been written as to the specificity and value of the tests. Many modifications in the technique of determining acid phosphatase have been made in an attempt to improve the accuracy and specificity of the procedure. Initially, urologists felt that they had a laboratory test that when positive was pathognomonic of metastatic carcinoma of the prostate. When reports appeared in the literature of elevated serum acid phosphatases in the absence of carcinoma of the prostate, many clinicians became disillusioned and some lost complete faith in this very valuable procedure. Reviewing the factors leading to erroneous results in acid phosphatase determinations, the authors found that hemolysis, previous endocrine or roentgen therapy, time and temperature, prostatic manipulation, certain electrolytes, spontaneous hydrolysis of the substrate, extraneous sources of acid phosphatase, human error, and the age of the patient should be considered in evaluating the significance of serum acid phosphatase levels. Available corrective measures are discussed. Approximately 10% false positive tests were obtained in patients with benign prostatic hypertrophy when total serum acid phosphatase values were interpreted. Only 2% false positive reactions were elicited in the same group of patients with benign prostatic hypertrophy when L-tartrate-inhibited "prostatic" serum acid phosphatase levels were used as an index. Patients with untreated carcinoma of the prostate and skeletal metastases uniformly showed elevated total as well as "prostatic" serum acid phosphatase values. In patients with carcinoma of the prostate previously treated, an elevated total or "prostatic" serum acid phosphatase is significant and usually indicates relapse. The nonspecific nature of L-tartrate inhibition of serum acid phosphatase was again demonstrated by its effect on the serum acid phosphatase values of prepuberal males and females. The authors conclude that the serum acid phosphatase determination is a valuable aid in the management of carcinoma of the prostate if the possibilities of error are known.

Local Injections of Hydrocortisone as a New and Effective Treatment for Strictures of the Urethra and Meatus. C. D. Bonner, M. K. Lyons and D. Shields. New England J. Med. **253**:130-134 (July 28) 1955 [Boston].

Excellent results were obtained in 8 patients with urethral and 10 with meatal strictures treated with local injections of hydrocortisone and dilatation. The average number of injections needed was three, but good results were sometimes obtained with one or two. Only two patients required more than three. The hydrocortisone, in an aqueous suspension, was injected directly into the stricture at two clock positions, five and seven, or three and nine. No anesthesia was required in patients with meatal strictures, and the injections, for which a 2 cc. syringe and a 22 gauge needle were used, were given directly without the aid of urethroscopy. Local, spinal, or general anesthesia was used as required in the patients with strictures of the anterior and posterior urethra; the strictures were located and visualized through the McCarthy foroblique panendoscope; and the injection was given with an endoscopic needle passed through the panendoscope and inserted into the stricture under direct vision. The most important feature of this insertion was to get the needle well under the mucosa and into the tunica propria before the hydrocortisone was injected. The initial dose of 6.25 mg. of hydrocortisone injected into each of the two sites chosen was later increased to 12.5 mg., and the number of injections, as well as the interval between them, was varied to suit the individual case. All the patients received prophylactic chemotherapy during cortisone administration. The success of the treatment did not appear to depend on the duration of the stricture, since a definite change, consisting of softening and easy distensibility, occurred in every case after the first injection, subsequently progressing to the point where no stricture could be felt. These results have been maintained for from 4 to 14 months without change in the clinical picture. The treatment described therefore seems to meet the requirements of an effective regimen for the control of meatal and urethral strictures. It is simple and relatively inexpensive, can be completed in a short time, and has so far proved completely effective. Its applicability to other genitourinary conditions is now under investigation.

Contribution to the Functional Study of Myelomatous Nephropathy. B. Magnani and V. Bonomini. Gior. clin. med. **36**: 557-571 (May) 1955 (In Italian) [Bologna, Italy].

Marked alterations of the kidneys are seen quite often in patients with myelomatosis. The clinical elements that might suggest an eventual renal impairment are, however, mild when they are not absent. Bence-Jones proteinuria is not by itself an index of the impairment of the glomerular filter because the Bence-Jones protein is so small in size that it escapes readily through the membrane of the glomerular capillaries. The renal functional damage varies in patients with myelomatosis according to the phase of the condition. As a consequence of the dysproteinemia, there may be an early alteration of the glomerular membrane with a secondary abnormal filtration of protein micelles and their passage into the tubular sections. In this phase the azotemia and the power of concentration are still within normal limits and the values of clearances are not significantly depressed. Later there is damage to the tubular cells, presumably because of phenomena of protein thesaurosis. The Volhard tests are altered and functional tests reveal a deficiency of the tubular section (reduction of the maximum tubular excretory capacity), which is greater than the concurrent reduction of the glomerular filtrate volume and the renal plasma flow. Thereafter, albumin-like masses in the lumen of the tubules cause the functional exclusion of the entire kidney. When more than two-thirds of the parenchyma is impaired, a condition of unmistaken renal insufficiency sets in. The functional tests are in this phase markedly depressed with an over-all reduction of the glomerular filtrate volume, the renal plasma flow, and the maximum tubular excretory capacity. The circulatory and tubular impairment is generally greater than the glomerular damage. The authors performed renal functional tests on three patients with myelomatosis. The results indicated a marked depression of the various test values in the following sequence: renal blood flow, renal plasma flow, maximum tubular excretion of *p*-aminohippuric acid, and, last, glomerular filtrate volume.

THERAPEUTICS

Chronic Bromide Intoxication. F. Norheim. Tidsskr. norske lægefor. 75:454-456 (June 15) 1955 (In Norwegian) [Oslo, Norway].

Patients with severe bromide intoxication often present such marked psychic symptoms that they are admitted in psychiatric departments. Milder cases may be overlooked. Not all physicians are attentive to the dangers in long-continued bromide treatment and to the symptoms in chronic bromide intoxication. Diagnosis can be made in vague cases, if the possibility of bromide intoxication is borne in mind. The sedative effect of bromides is good. Danger of habituation is slight, but all who prescribe bromides must be alive to the handicaps and dangers associated with their prolonged use. Bromides should not be prescribed in large amounts or with many reiterations. If it becomes necessary to give bromides for more than a relatively short time, the patient should be kept under close medical supervision. Special care is called for in the use of bromides for patients on salt-free diet, patients with impaired renal function, and older and asthenic patients. Four cases of chronic bromide intoxication are reported.

Influence of Alcohol as Contraindication Against Morphine. O. Naalsund. Tidsskr. norske lægefor. **75**:489-492 (July 1) 1955 (In Norwegian) [Oslo, Norway].

Two cases of acute morphine intoxication in chronic alcoholics, one case fatal, are reported mainly to illustrate the violent symptoms that, because of the synergism between alcohol and morphine-scopolamine, can occur on the use of morphine in therapeutically allowable doses in patients affected by alcohol. Influence of alcohol must be considered an absolute contraindication for the use of morphine. The symptomatology in acute morphine intoxication is seen in the first case: deep coma; insufficient or suspended respiration with periods of apnea, sometimes of Cheyne-Stokes type; and marked cyanosis with miosis. The combination of cyanosis and miosis is stressed as helpful in differential diagnosis. Since the introduction of N-allylnormorphine as a specific antidote in acute morphine intoxication, it is especially important to have the symptomatology in mind so that diagnosis can be made as soon as possible and treatment started. In the first case a condition threatening life was entirely changed in about a minute by the intravenous injection of N-allylnormorphine hydrobromide (Lethidrone).

Comparison of Two Regimes for the Treatment of Enterobiasis with Piperazine Citrate. R. W. Sappenfield, C. Swartzwelder, J. H. Miller and F. Martinez. J. Louisiana M. Soc. **107**:276-278 (July) 1955 [New Orleans].

The object of this study was to ascertain the efficacy of piperazine citrate for the treatment of patients with pinworm infection through a comparison of two schedules of therapy. The usual dosage schedule employed consists of anthelmintic therapy for two alternate weeks (treatment for seven days, rest seven days, treatment for seven days). The fact that some investigators observed that eggs of Enterobius vermicularis were demonstrable in Scotch tape anal swabs, taken on some patients during the seven day rest period, seems to indicate that autoinfection may occur during treatment with this regime. In the present study this schedule of therapy was compared with a straight 14 day course of medication. The daily dosage in both groups of patients was computed on a basis of 30 to 35 mg. per pound of body weight, up to a maximum of 2 gm., and was divided in two equal doses. Enterobius vermicularis was eliminated in 30 of 33 patients treated for 14 consecutive days with piperazine citrate and in 26 of 27 patients in whom the same anthelmintic was given with a treatment-free interval of one week intervening between the two weeks in which the drug was given. The authors feel that the difference between the therapeutic results with these two regimes is not statistically significant. Complaints during therapy were infrequent and mild in both groups of patients. Treatment for 14 consecutive days offers some practical and theoretical advantages over therapy for two alternate weeks.

Jaundice After Discontinuance of Chlorpromazine. G. C. Kohl, F. R. Maddison and R. E. Davis. Northwest Med. **54**:716-718 (July) 1955 [Seattle, Wash.].

Reviewing the literature for cases of jaundice occurring after cessation of chlorpromazine therapy, the authors found three papers that indicate a total of four cases in patients in whom jaundice developed after the drug had been discontinued. Duration of the jaundice in these patients varied from a transient day or two to several months. An additional case is described in a 54-year-old obese woman with refractory vertigo, nausea, and vomiting, who received treatment with chlorpromazine for 16 days in doses varying from 25 mg. given intramuscularly four times daily to 25 mg. given intramuscularly two times daily or given orally two times daily. Jaundice developed five days after the drug had been discontinued. Jaundice subsided after a duration of 32 days. The patient had been asymptomatic for four and a half months at the writing of the authors' paper. For the diagnosis of jaundice caused by chlorpromazine, which mimics closely, laboratory-wise and often clinically, obstructive jaundice and, therefore, requires differentiation from a surgically correctible jaundice, the following possible aids are offered: (1) a high index of suspicion; (2) current, or previous, administration of chlorpromazine; (3) jaundice occurring with laboratory findings suggestive of the obstructive type of jaundice, and (4) transient peripheral eosinophilia, which has not always been reported but was present in the authors' patient. In the final analysis the correct diagnosis will depend, as it always does, on careful evaluation of the total clinical picture.

Drug Evaluation in Angina Pectoris: Khellin, Heparin, Peritrate. R. C. Kory, A. S. Townes, R. E. Mabe and others. Am. Heart J. **50**:308-321 (Aug.) 1955 [St. Louis].

Three drugs, 5,8-dimethoxy-2-methyl-6,7-furanochromone (Khellin, Visammin), heparin sodium, and pentaerythritol (Peritrate) tetranitrate were given a therapeutic trial in 18 men between the ages of 33 and 76 years with a typical history of angina pectoris of from two months' to 12 years' duration. All of the patients had arteriosclerotic heart disease, six were hypertensive, and one patient had syphilitic aortic insufficiency. All patients were hospitalized. Subjective evaluation of the efficacy of the drugs was carried out in each patient by a daily record of each anginal attack throughout the study period. This was supplemented by objective evaluation with the anoxemia test. Six patients were tested with Khellin. In these patients the initial anoxemia test was followed by a two-week period on an identically appearing oral placebo, which in turn was followed by a second anoxemia test. Then after two weeks on 50 mg. Khellin given three times daily, a third anoxemia test was done. Of the six patients, five had positive results of the anoxemia test after Khellin administration or reverted to negativity after the placebo period. One patient reverted to negativity after Khellin administration but did not show any subjective improvement. One of the five patients with a persistent strongly positive response to the anoxemia test had a striking and sustained subjective improvement after Khellin administration. Khellin, though of definite therapeutic value in a limited number of patients with angina pectoris, is not generally useful because of the high incidence of side-reactions. Fifty milligrams of heparin given daily to 11 of the 18 patients produced subjective and objective benefit in only one, and this benefit was not sustained. This drug appears virtually ineffective in angina pectoris. Pentaerythritol tetranitrate in doses of 60 and 90 mg. daily provided impressive and sustained subjective improvement in two of six patients but failed to alter the patients' positive response to the anoxemia test. Although the general usefulness of therapeutic agents in angina pectoris can best be established by statistical compilation of "double blind placebo" subjective data as described by Greiner and co-workers [*J. A. M. A.* **144**:1025 (Nov. 18) 1950] and by objective testing, the therapeutic value in an individual patient may be amply demonstrated by alternate long periods on drug and placebo with a favorable response after the administration of the drug and failure of response after administration of the placebo. Since angina pectoris itself may vary greatly from patient to patient, it seems quite plausible that a drug might be quite effective in a limited number of patients but when averaged over a whole series of patients might appear ineffective. It would seem, therefore, that certain drugs, though of little general usefulness in angina pectoris, may be highly effective in an occasional patient.

Combination of Serpasil and Doriden in Treatment of Pain of Chronic Peripheral Arteriopathies and in Preoperative and Postoperative Sedation. D. Noceti and A. G. Nasta. Gazz. med. ital. **114**:82-85 (April) 1955 (In Italian) [Milan, Italy].

Serpasil and Doriden, a nonbarbiturate, hypnotic sedative, were given to 10 patients with chronic peripheral arterial disease and to 10 in the preoperative and 10 in the postoperative course to study the action of the combined administration on pain in the first group, its sedative and preanesthetic action in the second, and its sedative and calming action in the third. From a minimum of 0.25 mg. of Serpasil and 500 mg. of Doriden to a maximum of 0.75 mg. of Serpasil and 1.5 gm. of Doriden was given daily to the patients of the first group for 2 to 50 days. Those of the second and third group were given during the 48 hours preceding and following surgery, respectively, 0.75 mg. of Serpasil and 1.5 gm. of Doriden. The results revealed a decisive action of the combined therapy in the patients with chronic peripheral arterial disease in whom pain was eliminated or notably decreased without resort to morphine and its derivatives. Anxiety was greatly decreased in the patients who received the combined therapy preoperatively, and the patients who received it postoperatively were benefited by its analgesic and sedative action. Relatively large doses of the drugs were given without causing intolerance or side-effects. The authors conclude that this combined therapy should be considered an analgesic and sedative for the pain of chronic arterial disease in general, a preanesthetic means, and an excellent adjuvant in the therapy of painful states of the postoperative period.

Chloroquine Therapy in Rheumatoid Arthritis. R. E. Rinehart. Northwest Med. **54**:713-715 (July) 1955 [Seattle, Wash.].

The high incidence of amebiasis in patients with rheumatoid arthritis, which was reported by the author in a previous paper, suggested that an aggravating, if not causal, relationship between the two conditions might exist in some patients. Consequently, combined treatment with two highly effective amebicides, chloroquine phosphate and diiodohydroxyquin (Diodoquin), was given a trial in several hundred patients with rheumatoid arthritis. The dose employed was 0.65 gm. of diiodohydroxyquin given three times a day and 0.25 gm. of chloroquine given two times a day for from 3 to 12 weeks. Appreciable antirheumatic effects were being manifested with a minimum of toxic reactions and side-reactions when these drugs were administered in combinations. Further observations revealed that most of the antirheumatic effects, and most of the side-reactions, were caused by chloroquine. The most remarkable effects of the administration of chloroquine in rheumatoid arthritis were noted in children and young adults. Eight of 11 patients between the ages of 3 and 22 years with rheumatoid arthritis obtained major improvement or had a complete remission of the rheumatoid state when treated with amebicides. Eight of 14 patients between the ages of 38 and 72 years with rheumatoid arthritis obtained a lesser degree of over-all improvement with similar treatment. Actually, because of the age and disability of these patients, the improvement was more striking than in the younger group. A therapeutic trial with chloroquine is indicated for all patients with rheumatoid arthritis. Despite the high incidence of amebic infection in patients with rheumatoid arthritis and the pronounced improvement in the arthritis that followed amebicidal therapy, a causal relationship in individual cases was not proved. Years of experience on a much larger scale will be necessary to determine the exact relationship.

Local Use of Hydrocortisone Acetate in Orthopedic Conditions. M. Makin and T. Wiznitzer. Harefuah 48:253-255 (June 15) 1955 (In Hebrew with English and French summaries) [Jerusalem-Tel Aviv, Israel].

Nineteen patients with active rheumatoid arthritis were given 41 intra-articular injections of hydrocortisone acetate. This drug exerts a nonspecific local anti-inflammatory effect, inhibiting tissue reaction to noxious stimuli. A reduction of local pain, diminution of local inflammatory reaction, and increased range of motion suggested marked improvement of the condition in all these patients. Intra-articular injections of hydrocortisone are indicated in rheumatoid arthritis (1) before the correction by manipulation, stretching, or physiotherapeutic measures in patients with joint contractures; (2) when only one or two major joints are affected; and (3) in patients in whom general specific therapy with corticotropin (ACTH) and cortisone is contraindicated because of untoward reactions to the general therapy, associated complications such as hypertension or diabetes, and unsatisfactory response to general therapy. A total of 152 intra-articular injections was given to 103 patients with monoarticular osteoarthritis. Most of these patients had degenerative osteoarthritis of the knee joint. Ninety-six (93%) of these patients showed pronounced improvement of their condition for several weeks; improvement continued for several months in two patients. Hydrocortisone exerts only a temporary effect on the arthritic process, and its use is mainly indicated to abort acute exacerbations and to quiet the activity of the disease process. Thirty-two patients with stenosing tenovaginitis (Quervain's disease and trigger finger) were treated with local hydrocortisone that was injected into the involved area. Twenty-seven of these patients were cured within a brief period, most of them by a single injection of 25 mg. Local hydrocortisone injections were used also in isolated cases of gouty arthritis, tennis elbow, and frozen shoulder with varying success.

Hypertension Treatment with Alkaloids of Veratrum Viride and Veratrum Album Alone or in Combination with Hexamethonium Salts. D. Brunner, S. Altmann and L. Schindel. Acta med. scandinav. 151:487-498 (No. 6) 1955 (In English) [Stockholm, Sweden].

Of 87 patients with hypertension who were treated with simple psychotherapy, salt-poor diet, rice diet, and various hypotensive drugs at one of the medical departments of the Government Hospital in Jaffa, Israel, 55 were treated with the alkaloids derived from Veratrum viride in the form of alkavervir (Veriloid) or Veradine (an Israeli proprietary preparation) and with the alkaloids derived from Veratrum album in the form of Protoveradine, an Israeli proprietary preparation of protoveratrine. Of the 55 patients, 49 were followed for from three months to two years. Thirty-one patients received Veratrum preparations alone with good results, and 24 required additional oral administration of hexamethonium. This combined treatment made it possible to use smaller doses of each of the drugs (12 to 14 mg. of Veriloid or Veradine, or 3 to 4 mg. of Protoveradine daily, and not more than 2,000 mg. of hexamethonium daily); thus undesirable side-effects could be prevented and parenteral administration avoided. Results were good in 39 patients and fair in 16. Eleven patients did not respond to this nor to any other method of treatment. Results were evaluated according to the level of the blood pressure when the patient resumed his work and not according to that during rest. Of four illustrative cases reported on in detail, one was a 66-year-old woman with malignant hypertension associated with macroscopic hematuria, renal failure, and papilledema who was treated with protoveratrine alone, and one was a 49-year-old man with hypertension of 10 years' duration and serious hypertensive encephalopathy who was mentally disturbed and was treated with protoveratrine and hexamethonium bromide. The woman showed a good response to protoveratrine; the papilledema and the hemorrhages of the fundi disappeared, and the level of the blood urea was restored to normal. The mental state of the man improved, the blood pressure was reduced from 230/120 mm. Hg to 180/110 mm. Hg, and he was able to work in an office. Although both patients had severe dyspeptic disturbances shortly after treatment with protoveratrine was started, they got accustomed to the drug. Protoveratrine is a powerful hypotensive agent that may cause various undesirable side-effects. It does not, however, influence kidney function and this may be used in cases of renal failure. Fair results may be obtained with this drug even in patients with malignant hypertension.

Results of French Experiments with Prednisone (Metacortandracin) in Inflammatory Rheumatism. F. Coste, F. Delbarre, P. Massias and others. Rev. du rhum. 22:385-405 (May) 1955 (In French) [Paris, France].

French experimentation to date with the new dehydrocortisone, prednisone, formerly metacortandracin (Δ1,4-pregnadiene-17α, 21-diol-3, 11, 20-trione), a synthetic steroid, is based on 75 patients treated for from 15 days to two months. Their diagnoses were as follows: rheumatismal polyarthritis, 61; ankylosing spondylarthritis, 4; monoarticular or oligoarticular rheumatism, 2; gout, 2; tendinous synovitis, 2; scapulohumeral periarthritis, 2; painful exostosis of the calcaneum, 1; and coxarthrosis, 1. Most of these patients had been receiving hormone therapy with orally administered cortisone or hydrocortisone. Dosage of the drug was from 30 to 40 mg. for from 5 to 10 days, after which the doses were diminished to the minimal effective dose, which varies from 15 to 25 mg. according to the patient. Rapid clinical improvement was seen, especially of pain, but also in swelling and rigidity. The sedimentation rate often underwent a spectacular fall. Prednisone proved to be twice as effective as orally administered hydrocortisone and three times as effective as cortisone. No important physiological modifications were observed in any patient as a result of treatment. Six complete failures occurred in four patients with chronic rheumatismal polyarthritis, in one with tendinous synovitis, and in one with coxarthrosis. Certain intolerance phenomena were seen despite the routine prescription of low-sodium diet and the frequent adjunction of nervous sedatives. There were nine cases of various kinds of edema, six cases of digestive disturbances, seven of nervous disorders, three of muscular cramps, two of skin reactions, and one of cardiac insufficiency. These occurred especially in response to the elevated doses of prednisone (35 to 40 mg.). Thus it seems that the new hormone requires the same precautions as the ones formerly used.

Hepatic Necrosis and Other Visceral Lesions Associated with Phenylbutazone Therapy. J. M. McCarthy and R. T. Jackson. Brit. M. J. 2:240-242 (July 23) 1955 [London, England].

The patient whose history is reported was a woman, aged 73, who was first seen on April 30, 1954, when she gave a history of mild rheumatic pains of many years' duration. On the previous day she awoke with severe pain and swelling of small joints of her right hand. This spread during the day to her right wrist and elbow, and on the morning of the 30th had started in the left metacarpophalangeal joints. As the arthritis was very acute and spreading rapidly she was given cortisone acetate orally, starting with a dose of 100 mg. a day; this was rapidly increased to 200 mg. with satisfactory results, her joints showing improvement. Reducing the dosage was followed by a return of the arthritic symptoms. From June 12 to 16 she was given three 200 mg. phenylbutazone tablets a day, a total of 20 tablets. This was to tide her over the symptoms due to the withdrawal of cortisone. She left hospital on July 2 on a maintenance daily dose of 50 mg. of cortisone. When readmitted on July 24, she stated that she had taken no cortisone since July 17, as she had noticed that her ankles and feet were swollen. Her joints were again painful and swollen. She was given phenylbutazone from Aug. 5 to 15, three 200 mg. tablets a day; total tablets, 33. On Aug. 15 the phenylbutazone was stopped, as examination revealed impaired resonance with weak breath sounds and numerous rales over the upper zone of the right lung and signs of an effusion at the left base. X-ray examination confirmed the presence of a pleural effusion. The woman died on Aug. 23. The histological findings at necropsy fell into three main categories: (1) necrotic parenchymatous lesions in the liver and kidneys; (2) granulomas in the epicardium, pericardium, and lungs; and (3) interstitial myocardial lesions. The hepatic and renal lesions were similar to those found in chemical poisoning, and in this instance they were almost certainly due to phenylbutazone administration. Necrosis of this degree in both organs has not previously been described as caused by phenylbutazone, although there have been reports of milder hepatic damage in other patients with rheumatoid arthritis receiving phenylbutazone. Pleural and epicardial granulomas were most probably modified rheumatoid nodules. Other pulmonary changes conformed to those found in acute rheumatic disease. The authors feel that the myocarditis and the necrosis in the liver, and possibly also in the kidney, were related to one another in so far as, with the development of the myocarditis, passive congestion supervened and the anoxia thus induced in the parenchymatous cells of the liver and kidney aided the development of necrosis by the toxic action of phenylbutazone.

Fatal Cases of Bismuth Intoxication. T. L. Sterne, C. Whitaker and C. H. Webb. J. Louisiana M. Soc. **107**:332-335 (Aug.) 1955 [New Orleans].

Within a two month period four children with acute gingivostomatitis were admitted to hospitals in Shreveport, La., because of complications arising from treatment with a single injection of a soluble bismuth compound. All four of these children, ranging in age from 13 months to 6 years, died. Autopsy was performed in three of the patients. At one time it was generally believed that acute gingivostomatitis ("trenchmouth") in children was caused by a fusospirochetal organism. Bismuth therapy was introduced on the supposition that it would be effective against this organism. Studies of Dodd and Buddingh proved, however, that this disease results from primary infection with the herpes virus, which is not affected by bismuth. The infection is self-limited and the child is benefited most by attention to hydration and nutrition. If secondary infection with spirochetal organisms or other bacteria occurs, penicillin or other antibiotic therapy is far safer and probably more effective than bismuth. The administration of soluble bismuth involves the danger of toxic effects on kidney and liver tissues. Experimental work with rabbits indicated that previously damaged kidneys were more susceptible to bismuth injury than normal kidneys. In this connection the authors point out that one of their group had noted in 1941 that some renal damage is associated with acute gingivostomatitis.

Megaloblastic Anaemia Due to Phenytoin Sodium. G. M. S. Ryan and J. W. B. Forshaw. Brit. M. J. **2**:242-243 (July 23) 1955 [London, England].

Ryan and Forshaw observed two patients with a megaloblastic anemia and normal gastric acidity who were on diphenylhydantoin (phenytoin) sodium therapy. Since the possibility that phenytoin sodium might produce a megaloblastic anemia had been suggested by others, the authors examined the blood of 102 epileptic patients who had been taking phenytoin sodium for several years, and the laboratory records of 140 patients with a hemoglobin value below 70% were also surveyed. None of the 102 epileptic patients had a megaloblastic anemia, but one possible case was discovered from the survey of the records. This case and the aforementioned two patients are described. The authors feel that, in view of the rarity of this condition and the excellent response to treatment, the use of this drug is not contraindicated. It is probably wiser, however, to change to another anticonvulsant drug in those patients in whom a megaloblastic anemia develops. Of the total of 10 patients whose cases have been described, 7 were treated initially with vitamin B_{12}, but only 4 showed a good response. On the other hand, there was a good response in the two patients treated with folic acid initially and in three patients who were given folic acid after vitamin B_{12} had failed.

Parenteral Chloramphenicol Therapy in Bronchial and Pulmonary Infections. R. Storti, N. Mocchi and E. Bonvini. Minerva med. **46**:1745-1749 (June 16) 1955 (In Italian) [Turin, Italy].

Chloramphenicol succinate in average daily doses of 2 gm. was given intramuscularly to seven patients with pulmonary abscess, to four with bronchopneumonia, to one with suppurative bronchiectasis, to one with typhoid bronchopneumonia associated with secondary empyema, and to one with diffuse bronchitis. Some patients received the drug also by the intravenous and intracavitary routes or in aerosol form. Fever subsided in the patients with bronchopneumonia in three days and in those with pulmonary abscess and suppurative bronchiectasis in seven days. The last-named patients continued to receive the drug for varying periods, sometimes for as long as 46 days after the fever had subsided. Although the good effect of the therapy became evident sooner in the patients with bronchopneumonia, the best results were obtained in those with pulmonary abscess in whom anergy and poor general condition were extremely marked before the therapy was started. Chloramphenicol succinate had a marked antibiotic activity also in cases that had been resistant to other antibiotics. It was especially effective when given intravenously. Intolerance, side-effects, or changes in the blood picture were not observed. There was a mild and transitory leukopenia and anemia induced by the action of the drug in three patients during the treatment period.

PATHOLOGY

Anatomic Lesions Observed in Infants Dead of Toxicosis. J. Chaptal, R. Jean and R. Loubatières. Semaine hôp. Paris **31**: 2473-2480 (July 10-14) 1955 (In French) [Paris, France].

Necropsies were performed in 15 infants dying of toxicosis. Three of these died several hours after treatment had been initiated and the rest in from two to six days after being hospitalized. The deaths all occurred before the authors had found what metabolic disturbances are responsible for the complications of toxicosis and, therefore, before the period in which these patients received the treatment of choice for their disease. The lesions found in the different patients resembled each other in that they represented the ultimate stages of suffering from a common cause. Other authors have insisted on the importance of vascular changes in the pathology of toxicosis, but these workers found that vascular lesions were neither the most frequent nor the most severe. The most striking lesions were those seen in the most active parenchymal cells. They were often associated with an irritative syndrome of the connective and reticuloendothelial tissues. These alterations are caused by the deranged metabolism of each cell, which is in turn the result of the general imbalance of the interior environment characteristic of toxicosis. It can therefore be said that there are no specific lesions of toxicosis. The changes observed represent nothing more than the consequences of prolonged hydrosaline imbalance and its effects on general body metabolism.

INDUSTRIAL MEDICINE

Solvent Hazards in the Dry-Cleaning Industry. R. G. Bourne. M. J. Australia **1**:879-881 (June 11) 1955 [Sydney, Australia].

There are two hazards associated with the solvents used in dry cleaning—contact dermatitis and inhalation effects. Medically speaking, the solvents fall into two main classes: petroleum derivatives and chlorinated hydrocarbons. The petroleum derivatives used include the following: white spirit, composed of mixed hydrocarbons—boiling point, 150 to 210 C; Stoddart's solvent, composed of mixed hydrocarbons—boiling point, 300 to 400 C; and cleaners' naphtha. The maximum allowable concentration is 1000 parts per million of air for each. White spirit is the dry-cleaning agent most widely used. It is superior to the chlorinated hydrocarbons for the following reasons: (1) it vaporizes less readily; (2) it has a lower toxicity; and (3) it costs much less. Because of factors (1) and (2) and provided reasonable precautions are taken, the likelihood of systemic effects due to inhalation of vapor is almost nil with white spirit. The author had no opportunity of observing the chlorinated hydrocarbons in use. The most important factor in the prevention of harmful effects from white spirit is to avoid contact of the solvent with the operator's skin. The author suggests that suitable machinery would not only prevent dermatitis but would save time and money. The use of gloves involves the disadvantage that they are expensive and cause discomfort. Barrier creams are of value. In diagnosing dermatitis from dry-cleaning solvents, it should be determined that the patient actually handles the solvent, that the lesion has appeared since he handled it, and that the condition is relieved when he is away from work. Pustular dermatitis is most common. Small pustules are found around the hair follicles of the hands and forearms. Vesicles may occur and may become purulent. Maceration of the skin is caused by the removal of fat by the solvents, followed by secondary infection. Boils and carbuncles may develop. Occasionally the skin is fissured as well as dry. Total removal from contact with the solvent is the only means of complete cure. In spotting, the process by which stains are removed, many potentially dangerous volatile materials, such as carbon tetrachloride, benzol, and carbon bisulfide are used. The damage to liver and kidney caused by exposure to chlorinated hydrocarbons is briefly mentioned. Total removal from exposure and adequate treatment are essential, because such exposure can be fatal.

Allergic Reactions to Penicillin in Workers in Charge of the Antibiotic's Production. R. Maffei and L. Napolitano. Minerva med. 46:1785-1792 (June 20) 1955 (In Italian) [Turin, Italy].

Of the 156 workers (127 women) in a penicillin factory who came in contact with the finished product, 19 (12.17%) showed allergic manifestations. These were definitely the result of allergic hypersensitivity to the antibiotic in all except four workers with dermatitis who had previously had penicillin therapy. The fact that these reactions followed the workers' exposure to the antibiotic was proved by the results of (1) the scratch test with powder penicillin diluted in one drop of isotonic sodium chloride solution, (2) the intracutaneous test with 0.05 cc. of a penicillin solution containing 2,000 units of the antibiotic per cubic centimeter, and (3) the patch test with a penicillin solution containing 10,000 units of the antibiotic per cubic centimeter. Of the three tests, the intracutaneous was the most valuable. Asthma was found in 3 workers, allergic dermatitis in 14, and Quincke's angioneurotic edema in 2. The three cases of asthma are noteworthy in that they point to the possibility of sensitization by inhalation. The authors emphasize a grave danger to workers in the penicillin industry: it is possible that a sensitization acquired by occupational contact may cause, after the eventual administration of the antibiotic, a severe reaction of the anaphylactic type. This danger is much greater if the person is unaware of the possibility of having acquired a state of general hypersensitivity and the physician relies on the fact that the person never had penicillin therapy before. While the age of the workers in this series showed no relationship to the allergic manifestations, the time of exposure to the antibiotic, which was always of at least several months, did. A prophylactic measure of great value that should be introduced in penicillin industries is the systematic use of skin reaction tests. These will indicate whether the worker has already acquired a state of hypersensitivity, in which case he should be temporarily transferred to another department to avoid the eventual onset of allergic manifestations. The worker will also be made aware of the possible risks that the eventual administration of penicillin by the parenteral or any other route may involve. The authors suggest that the administration of antihistamines may be useful before penicillin is given to workers who have shown allergic reactions or whose skin reaction to the antibiotic is positive. The use of protective creams, rather than rubber gloves, for the hands is also suggested. A specific desensitizing therapy, especially in patients with chronic urticaria, bronchial asthma, and dermatitis, can be efficacious. When an immediate result is desired, corticotropin and cortisone may be administered first, and the desensitizing treatment later.

RADIOLOGY

Mucous Colon. M. H. Poppel, H. Adler, H. G. Jacobson and others. Radiology 65:50-56 (July) 1955 [Syracuse, N. Y.].

The syndrome of mucous colon, which consists essentially of diarrhea of varying degree with the passage of mucus, has many synonyms, such as mucous colitis, irritable colon, spastic colon, mucocatarrhal colitis, and chronic catarrhal colitis. The term mucous colon is used to provide a clear distinction between this syndrome and any form of actual inflammation, such as ulcerative colitis to which it bears no relation. Abdominal pain, occasional vomiting, fulness, and belching are often associated with the diarrhea, and other signs and symptoms, such as chest pain, palpitations, sweating, dizziness, headache, and tremor, may also be present. The physical findings may consist of tenderness in the region of the descending colon and a firm, palpable, tube-like descending colonic segment in a thin patient. The general condition is good. Most of the patients apparently have a labile autonomic nervous system with concomitant cardiovascular instability, and the present-day tendency is to regard the syndrome of mucous colon as a somatic response to nervous tensions, e. g., fear, anxiety, and resentment. The roentgenologist is in a position to establish the diagnosis of mucous colon if he is properly aware of its clinical and radiological features. Roentgenologic examination shows no abnormal structural changes, but functional abnormalities are sometimes found. These abnormalities, which may be the result of the peculiar mucoid material in the colon, spasticity, or peristaltic effect, may also be seen when barium is administered orally. The mucus content of the colon is manifested by radiolucent defects in the barium column, and postevacuation films may show thickened mucosa with distorted folds. Ulcerative colitis has not developed in any of the 17 patients in whom a diagnosis of mucous colon was established by the authors, although they have been followed for periods of as much as eight years.

Gastric Adenomyosis vs. Aberrant Pancreas. C. V. Cimmino. Radiology 65:73-77 (July) 1955 [Syracuse, N. Y.].

Gastric adenomyosis, or adenomyoma, consists of a nodule, usually within 5 or 6 cm. of the pyloric ring, the thickening being palpable from the exterior of the stomach, with bulging of the peritoneal surface and with intact overlying mucosa. The small mass is found on gross section to protrude into the lumen of the stomach, and the lesion is seen to be mainly submucosal, although the entire wall may be involved. Pinpoint cystic cavities may be seen. The glandular structures may be differentiated from the muscular component by their lobulation and yellowish color. The naming of the microscopic stages, which range from those with undifferentiated columnar epithelial structures, exclusively, through those with good amounts of both undifferentiated and differentiated acinar tissue to those with a cellular pattern indistinguishable from normal pancreas, the so-called aberrant pancreas, or even normal entopic Brunner's glands, has occasioned some confusion in the past. Stages in which the epithelial components consist almost exclusively of undifferentiated acinar tissue have, with some variations, been called adenomyosis; those in which there was differentiated tissue comprising pancreas alone have been designated aberrant pancreas; and those in which Brunner's glands are the sole element are known as heterotopic Brunner's glands. The term adenomyosis, though variously used, has apparently never been applied to the stage designated as aberrant pancreas. Study of a patient in whom a growth diagnosed radiologically before operation as aberrant pancreas in the stomach proved on pathological examination to be adenomyosis suggests that the specific term aberrant pancreas should be abandoned by radiologists in favor of the generic term adenomyosis. The fact that no significant clinical or radiological differences could be found in this case—the only one of its kind recorded—by which the tumor could be distinguished preoperatively from typical aberrant pancreas makes it seem advisable to leave the diagnosis of the specific differentiation to the pathologist. Increasing familiarity on the part of radiologists with the generic concept of adenomyosis in the stomach (and elsewhere in the digestive tract) and the confidence with which they present their diagnosis will prevent many unnecessary gastrectomies.

Gastroduodenal Intussusception. H. Mauthe and G. Zwicky. Radiology 65:86-89 (July) 1955 [Syracuse, N. Y.].

Gastroduodenal intussusception appears in roentgenograms as a large, well-circumscribed filling defect in the duodenum surrounded by streaks of contrast material trapped in the folds of the duodenal mucosa. These streaks tend to arrange themselves in a circular or bed-spring pattern almost identical with that seen in the case of an ileocecal intussusception. A large polypoid lesion originating in the duodenum may also produce a similar appearance, but the shortening and distortion of the distal end of the stomach that accompanies gastroduodenal intussusception makes it possible to differentiate between these two conditions. Ileocecal and gastroduodenal intussusceptions in adults apparently occur when a neoplasm on the wall of the stomach or bowel drags the wall with it as it is propelled forward by peristaltic action. Very few cases of gastroduodenal intussusception have been reported and in only four, including two seen by the authors within a period of four months, was the condition diagnosed before operation. The intussusception, diagnosed by roentgen examination in each of the authors' cases, was found at operation to have been caused in one by a gastric lipoma and in the other by a polypoid adenocarcinoma. The fact that gastric lipomas are rare, only 103 having been found by Palmer when he reviewed the literature in 1951, gives a special interest to the first of these two cases.

PHYSIOLOGY

The Physiologic Closure of the Ductus Arteriosus in the Newborn Infant. F. L. Eldridge and H. N. Hultgren. J. Clin. Invest. 34:987-996 (July) 1955 [New York].

The exact time of functional closure of the ductus arteriosus in the newborn human infant is still unsettled, but there is evidence that, at least in some infants, the ductus may be patent during the first few hours of life and that it may be the site of a venoarterial shunt of considerable magnitude. The present study was stimulated by the observation that infants in the neonatal period occasionally show cyanosis of the lower part of the body but not of the upper portion. Regional cyanosis of this type has been observed in older children and adults who have a patent ductus arteriosus with pulmonary hypertension and a venoarterial or reversed shunt through the ductus. Owing to this shunt of venous blood through the ductus to the descending aorta, the arterial oxygen saturation is lower in the feet than in the hands. The authors believed that, if a similar shunt were present in the newborn infant, it would continue as long as the ductus remained patent and the pressure in the pulmonary artery exceeded that in the aorta. The authors determined the oxygen saturations of blood samples obtained from the hand and foot of 60 infants from 40 minutes to 11 months after birth. It was found that, in a majority of infants under 3 hours of age, and in many infants under 3 days of age, the foot saturations were significantly lower than hand saturations. Hypoxia increased or reestablished the hand-foot oxygen saturation difference in infants up to 15 hours of age who had minimal initial hand-foot differences. The following implications have been drawn from these studies. 1. The ductus arteriosus may be open in the newborn human infant. 2. Under these circumstances it is the site of a venoarterial shunt of considerable magnitude that persists in a significant number of infants up to 72 hours of life. 3. A high pulmonary artery pressure is present at birth and persists as long as the venoarterial ductal shunt exists. 4. The cessation of the venoarterial ductal shunt is probably due to a fall in pulmonary artery pressure below the pressure in the aorta, rather than to an actual closure of the ductus. 5. Studies of blood gases in newborn infants in which heel blood has been used are not representative of true arterial blood, since an admixture of venous blood from the ductus may be present. 6. Heart murmurs are rarely heard in the newborn infant, in spite of the early physiological patency of the ductus arteriosus.

Smears from the Oral Mucosa in the Detection of Chromosomal Sex. K. L. Moore and M. L. Barr. Lancet 2:57-58 (July 9) 1955 [London, England].

The skin biopsy test of chromosomal sex is being used with increasing frequency as an aid to differential diagnosis in errors of sex development, such as hermaphroditism and gonadal dysgenesis. In the experience of Moore and Barr it is reliable only if the sections are of good technical quality. Difficulty is sometimes encountered in obtaining sections that display fine nuclear detail. The authors investigated smears from the oral mucosa in the hope of simplifying the cytological detection of chromosomal sex. In 140 subjects (81 males and 59 females) the mucosa of the cheek was rubbed firmly with the edge of a wooden tongue depressor. The material obtained was smeared gently on microscopic slides that had been coated with a thin film of Mayer's egg albumin. Thirteen of the smears were from infants aged 2 to 7 days; the ages of the other subjects ranged from 2 months to 62 years. The Ayre spatula was a useful substitute for a tongue depressor when dealing with infants. The slides were immersed immediately in Papanicolaou's fixative (equal parts 95% ethyl alcohol and ether). Drying of the smear was avoided. The period of fixation was not critical; times of from 2 to 24 hours were satisfactory. The fixed smears were passed through 70% alcohol, 50% alcohol, and distilled water, 5 minutes in each, with two changes of distilled water. The following staining procedure resulted in good nuclear detail: (1) staining in a 1% solution of cresyl echt violet (Coleman and Bell) for 5 minutes; (2) differentiation in 95% alcohol (two changes) for about 5 minutes; (3) further differentiation in absolute alcohol, checking at intervals with the microscope until the details of cell structure were sharply defined; (4) clearing in xylene (two changes); and (5) mounting in picolyte or neutral balsam. Some smears were stained by the Feulgen method for desoxyribose nucleic acid. The characteristic female sex chromatin was clearly visible in the epithelial cell nuclei of females, while a similar chromatin mass was not seen in the cells of males. The authors believe that, with reasonable care, chromosomal sex can be diagnosed from smears of oral mucosa with very little chance of error. The preparation of mucosal smears has the advantage of simplicity over skin biopsies.

Distribution and Absorption of Tobacco Tar in the Organs of the Respiratory Tract. P. Ermala and L. R. Holsti. Cancer 8:673-678 (July-Aug.) 1955 [Philadelphia].

The localization, concentration, and duration of action of chemical carcinogens are decisively influenced by their distribution and rate of absorption in the body. Study of the distribution and rate of absorption of tobacco tar in the respiratory tract of experimental animals by the fluorescence-microscope method and in a full-scale plaster model of the human organs showed a striking correlation between the clinical incidence of cancer and the localization of the tar. The heaviest localization, as shown on the model, generally occurred at the sites first reached by the smoke in its most concentrated form, such as the lips, the mobile portion of the tongue, and the mucosa of the cheeks between the rows of teeth. Localization farther down in the respiratory tract was heaviest in the narrow portions where the smoke stream strikes the walls of the organs, as at the tonsillar region, the vocal cords, and the tracheal and bronchial bifurcations. The hard palate and the trachea, on the other hand, show only very small amounts. Changes in the direction of the smoke stream produced by gyratory motions in the buccal cavity also keep it from bearing directly on the dorsal wall of the pharynx and settling there. Qualitative as well as quantitative differences related to the type of smoking (pipe, cigarette) were found in the tar localized in these various regions. Contact between the tar and the tissues, however, is only the starting point for the absorptive process, i. e., the penetration of the tar into the cells and tissues, which is due not so much to the amount of tar on the tissue surface as to the absorptive properties of the tissue itself. The absorption studies made on animals showed that the localization of the action of tobacco tar corresponds to the passive distribution observed in the plaster model with the exception of tissues containing submucous fat. These are the tissues that are capable of storing the carcinogenic agent and thus enabling it to exert the long and intensive local action necessary for cancer production. The correlation between the clinical incidence of cancer and the localization of the effect of tobacco tar revealed by these studies furnishes additional, though not conclusive, support for the theory that tobacco has some significance as a carcinogenic agent. The specific share of the chemical carcinogen cannot be distinguished from that of the chronic irritation of tobacco smoking, however, because they both become effective at the same sites.

BOOK REVIEWS

Symposium on Atherosclerosis. Held under auspices of Division of Medical Sciences, National Academy of Sciences, National Research Council, at request of Human Factors Division, Air Force Directorate of Research and Development, 22-23 March, 1954. Publication 338. Cloth. $2. Pp. 249, with illustrations. National Academy of Sciences—National Research Council, 2101 Constitution Ave., Washington 25, D. C., 1954.

This volume grew out of the interest of the Human Factors Division in the problem of cardiovascular disease as a factor limiting the length of service of flying personnel. As originally planned, the conference was to have dealt only with lipoproteins, but as finally constituted, the symposium extended well beyond this field and even considered problems other than atherogenesis. The 23 papers presented are given *in extenso* and are adequately illustrated. An exceptionally wide range of disciplines is represented. The papers are divided into five groups, and the contents of each group have been summarized by a group chairman. There is also a brief report of the discussion that followed each paper. The first part presents anatomic and pathological studies bearing on the pathogenesis of atherosclerosis, with extensive discussion of the reaction of the vessel wall to various types of injury. The contribution of the electron microscope to studies in this field was dealt with. Finally, a large part of the discussion covered the biochemical approach to the problem with special reference to lipid and lipoprotein metabolism. The caliber of the various presentations varies, but the symposium as a whole is excellent, bringing together as it does up-to-date views on the various aspects of atherogenesis.

A critical reader inevitably uncovers certain inconsistencies and defects, to which reference might be made. In Winternitz's discussion of the blood supply of the vessel wall (page 15), he states that, because cholesterol is synthesized by the organism, the problem of "the relationship of cholesterolemia to diet . . . has become less pressing." Few would agree with this statement. Hass, writing on vascular structure, states (page 30) "deposits of lipids . . . appear at about ten years of age in the intima of the human aorta. . . ." Surely, much earlier deposits have been demonstrated. Indeed, on page 34, Duff refers to the work of Fangman and Hellwig, who found lipid deposits in the coronary intimal cushions of newborn infants. Hass's statement (page 31) that "the amount of lipoprotein found was not related quantitatively to the level of plasma cholesterol" is not backed by references. Since essentially all plasma cholesterol exists as lipoprotein complexes, it is difficult to see the justification for this view. Dr. Albert Lansing's paper was marred by a deficient system of references. His reference to Chaikoff and Entenman (page 59), who, he states, "observed the existence of an antifatty liver factor which is protease free and is present in the pancreas" might be challenged. It is well known that choline is present in the pancreas and that methionine present in pancreatic protein exerts a lipotropic action. Chaikoff and Entenman are best known for their demonstration that the so-called lipocaic prepared from pancreas is lipotropic because of its proteolytic activity. Although Mann and Stare present a stimulating paper on nutrition and atherosclerosis, strong exception must be taken to their statement (page 172) that "it is difficult to see why the myth persists that vegetable fat behaves differently in the diet than does animal fat with respect to cholesterol metabolism. There is no good evidence to support this belief." This statement was as incorrect in March, 1954, as it is today.

This volume is an important addition to the literature in this broad and controversial field and can be recommended as essential reading to every serious student of this subject.

Autoradiography in Biology and Medicine. By George A. Boyd, Director, Arizona Research Laboratories, Phoenix. Cloth. $8.80. Pp. 399, with 98 illustrations. Academic Press, Inc., 125 E. 23rd St., New York 10, 1955.

Autoradiography is a production of an image on a photographic plate or film by radioactive radiation. The author has prepared a well-organized book that can be easily understood by the nonexpert in the field. Several techniques for producing various types of audiograms are discussed in detail. The bibliographic material consists of: (1) a bibliography covering most of the literature through 1953, (2) an author index, and (3) a classified subject index. The last designation will be of special interest to those interested in applying these techniques to specific branches of research, such as tissue, cancer, and bone and teeth studies and embryology. Methods for preparing nonflat surfaces, fluids, histological sections, cells, dust, and other microscopic particles are outlined. This authoritative book, containing a generous number of well-chosen illustrations, should be of interest to research workers in biology and medicine.

Breast Cancer and Its Diagnosis and Treatment. By Edward F. Lewison, B.S., M.D., F.A.C.S., Professor of Surgery, Johns Hopkins University School of Medicine, Baltimore. Cloth. $15. Pp. 478, with 181 illustrations. The Williams & Wilkins Company, Mt. Royal and Guilford Aves., Baltimore 2, 1955.

This is a comprehensive and well-written book that brings all aspects of cancer of the breast to the reader in a readable fashion. The anatomy, physiology, pathology, and experimental work are fully discussed. Major emphasis is placed on diagnosis, treatment, and prognosis. Reasonable criteria of operability are outlined. The author believes that the meticulous standard radical mastectomy provides the best prospect for permanent or protracted freedom from demonstrable disease in operable cases. The McWhirter plan of treatment, extended radical mastectomy, radiotherapy, and palliative hormone therapy are all presented with thoroughness and balanced judgment. The responsibilities of the surgeon, the psychological impact of cancer of the breast on the patient, and the important factors of after-care, including physical and psychological rehabilitation, are discussed with understanding. The contributors were chosen with care, and the sections written by them are excellent. The bibliographies are extensive and up-to-date, including some 1955 references. The illustrations are of good quality, and the statistical tables are clear and well designed. The book has value as a reference work for the undergraduate and the young physician. Its completeness and readability make it a contribution of importance to those experienced and well informed in the field of breast cancer. It should be a valuable addition to any private or institutional library.

Good Health for You, Your Family, and Your Community. By Nelson S. Walke, Ph.D., Professor and Chairman, Department of Health and Physical Education, Brooklyn College, New York, Nathan Doscher, LL.B., Ph.D., Assistant Professor, Department of Health and Physical Education, Brooklyn College, and Glenna Garratt Caddy, M.D., Supervising Psychiatrist, Brooklyn State Hospital, Brooklyn, N. Y. McGraw-Hill Series in Health Education, Physical Education, and Recreation. Clifford Lee Brownell, consulting editor. Cloth. $4.75. Pp. 415, with 48 illustrations. McGraw-Hill Book Company, Inc., 330 W. 42nd St., New York 36; 95 Farringdon St., London, E.C.4, England, 1955.

In a well-organized approach that emphasizes the varied factors operating to produce total health in the individual, the authors have done a good job of orientation for the college student reader. Logically, the volume begins by considering family life and health, goes next into community health, and ends with attention to personal health. The longest of the three sections is on community health, and this also is a logical procedure because of the great importance this phase of living has assumed. Control and prevention of communicable diseases are extensively described, and there are discussions of mental health problems, control of foods, drugs, and cosmetics, housing, accident prevention, first-aid and disaster measures, and school health. Because basic health aspects are considered in the first part, the part on personal health is pinpointed on special aspects, including weight control, vision and hearing, data on narcotics and stimulants (a part that is especially well done), personal

---

These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

appearance, and rest and recreation. General health and medical care, dental health, diet, the effects of heredity, and preparation for family life are the main topics in part 1.

This volume presents a good roundup of available material in a frank, readable style. At the end of each chapter, problems based on material that has been presented are listed. In addition, each chapter has a bibliography under the unusual title of "interesting reading." The printing is clear, and a fine quality of paper is used. Numerous illustrations add to the attractiveness of the book, which can be highly recommended.

Elsevier's Encyclopædia of Organic Chemistry. Founded by (the late) E. Josephy and F. Radt. Editor in Chief: Dr. F. Radt. Series III: Carboisocyclic Condensed Compounds. Volume 14-supplement: Nor-Steroids. Steroids: Hydrocarbons, Halogen, Nitrogen, and Unsubstituted Monohydroxyl Compounds. Edited by A. Georg, with assistance of M. Georg-Plant. Cloth. $36 for set subscribers; $42 for subscribers to Series III; $48 per single copy. Pp. 1347s-1867s. Elsevier Press, Inc., 402 Lovett Blvd., Houston 6; 155 E. 82nd St., New York 28; 118 Spuistraat, Amsterdam C, Netherlands; for British Commonwealth, except Canada: Cleaver-Hume Press Ltd., 31 Wright's Lane, Kensington, London, W. 8, England, 1954.

This volume includes the nor-steroids, steroid hydrocarbons, and their halogen, nitrogen, and monohydroxyl derivatives as well as closely related degradation products. The structural formula, properties, methods of formation, and reactions of each substance are described. Such compounds as pregnenol, androstenol, 7-dehydrocholesterol, cholesterol, ergosterol, stigmasterol, and sitosterol, as well as their parent hydrocarbons and derivatives, are included. Literature has been consulted up to 1954 on the structure and configuration of the compounds.

Management of Disorders of the Autonomic Nervous System. By Louis T. Palumbo, M.D., Chief, Surgical Service, Veterans Administration Hospital, Des Moines, Iowa. Cloth. $5. Pp. 186, with 23 illustrations. The Year Book Publishers, Inc., 200 E. Illinois St., Chicago 11, 1955.

This small book attempts a simplified coverage of the autonomic nervous system. The first three chapters deal with anatomy, physiology, and pharmacology; the fourth describes tests and changes following surgery; and the last six chapters discuss diseases in various regions of the body. The illustrations are simplified schematic drawings showing areas of denervation. All topics are treated briefly giving conventional opinions supported by several references. The manual should aid the medical student entering into the clinical subjects. It should also aid the physician who is not familiar with the basic principles of disorders and diseases of the autonomic nervous system. It does not develop its topics sufficiently to afford a good source for knowledge concerning therapy or for reference material.

Transplantation of Tissues: Cartilage, Bone, Fascia, Tendon, and Muscle. Volume I. By Lyndon A. Peer, M.D., Clinical and Research Director, Rehabilitation Center for Plastic and Reconstructive Surgery, St. Barnabas Hospital, Newark, N. J. Cloth. $13.50. Pp. 421, with 163 illustrations. The Williams and Wilkins Co., Mt. Royal and Guilford Aves., Baltimore 2, 1955.

In the past quarter century there have been such rapid and changing strides regarding the transplantation of tissue that it has been imperative that someone gather this experimental and clinical material together. The author, a scientific investigator and surgeon, has done just that and has competently evaluated what has been put forth. This volume is written for the physician, surgeon, and medical student. It tells what happens to autogenous, homogenous, and heterogenous tissues when they are transplanted into human beings and other animals. An introductory part of the book reviews the human tissue cell, its behavior, and how it is affected by transplantation. Subsequent chapters treat each tissue separately as to its histological change, the basic experimental value, and clinical application in the treatment of specific conditions. The book becomes repetitious in parts, and the author has a tendency to insert many of his own pet clinical usages of various transplants. These are only minor discrepancies in an excellently arranged textbook that contains simple instructive illustrations, descriptive photomicrographs, a subject and author index, and an exhaustive bibliography.

Experimental Design and Its Statistical Basis. By D. J. Finney, M.A., Sc.D., F.R.S. The Scientist's Library: Biology and Medicine, edited by Peter P. H. De Bruyn, M.D. Cloth. $4.50. Pp. 169. University of Chicago Press, 5750 Ellis Ave., Chicago 37; Cambridge University Press, Bentley House, 200 Euston Rd., London, N.W.1, England; University of Toronto Press, Toronto 5, Canada, 1955.

This book offers chapters on randomized blocks and Latin squares, incomplete block designs, factorial experiments, sequential experiments, biological assays, and the selection of a design. The reader is assumed to be adept at handling point binomials, to understand the analysis of variance, to be reading the book consecutively rather than as a reference, and to have at hand a library of tables and the introductory textbooks listed in the bibliography. This last requirement results from the fact that the author sometimes devotes several pages to a subject like contravariance without supplying either a usable definition or an adequate example. The author deprecates (page 3) the tendency of biologists to "select textbooks of statistical methods almost entirely by the criterion of easiness to read." He makes this one harder by omitting conjunctions that might help the reader to discern the relation between ideas and by using elliptical phrases like "number of treatments" when he really means "number of kinds of treatments." The book can be recommended to advanced students of biometry.

Control of Communicable Diseases in Man. Official report of American Public Health Association. Eighth edition. Paper. Pp. 219. American Public Health Association, 1790 Broadway, New York 19; United States Department of Health, Education, and Welfare, Public Health Service, Washington, D. C., 1955.

This booklet has passed through sufficient editions to insure its usefulness and reliability. The contents are arranged in alphabetical order so that one may, even without referring to the table of contents, look for ascariasis, blastomycosis, diphtheria, or any other disease that is described. Each disease is taken up under identification, etiological agent, source and reservoir of infection, mode of transmission, incubation period, period of communicability, susceptibility and resistance, occurrence, and methods of control. This is a practical and handy little volume that should be found useful by nearly all practitioners, public health workers, and others who are interested in the control of communicable diseases in man.

Diseases of the Ear, Nose and Throat. By William Wallace Morrison, M.D., Professor of Otolaryngology and Director of Department, New York Polyclinic Postgraduate Medical School and Hospital, New York. Foreword by Arthur W. Proetz. Second edition. Cloth. $10. Pp. 756, with 359 illustrations. Appleton-Century-Crofts, Inc., 35 West 32nd St., New York 1, 1955.

Like its predecessor, the second edition of this book is directed at undergraduate medical students and general practitioners. It stresses the practical rather than the theoretical and deals primarily with common ear, nose, and throat conditions, touching briefly on rare diseases. The field is competently covered from the points of view of anatomy, physiology, pathology, diagnosis, differential diagnosis, and therapeutics. The illustrations are drawn by the author, who has had many years of experience with chalk drawings to illustrate lectures for students.

Medical and Public Health Laboratory Methods. Edited by James Stevens Simmons, S.B., M.D., Ph.D. and Cleon J. Gentzkow, M.D., Ph.D., Bureau of Laboratories, Department of Health, Commonwealth of Pennsylvania. Successor to fifth edition of Laboratory Methods of the United States Army. [Sixth edition.] Cloth. $18.50. Pp. 1191, with 124 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1955.

This book is a successor to the fifth edition of Laboratory Methods of the United States Army. There are many contributors, the coverage is extensive, and for the purposes intended it is complete. It is easy to read and adequately illustrated and has sufficient data that can be applied to practical problems. The book is assured of continued acceptance by those familiar with its predecessors. It is a handy reference book that is sufficiently comprehensive for practitioner and student, and it lends itself well to everyday desk use and to integration with other volumes containing more detailed descriptions that are more specialized in approach.

QUERIES AND MINOR NOTES

PROLONGED ANTICOAGULANT THERAPY

To the Editor:—*A 37-year-old man recently suffered an acute posterior myocardial infarction. He is not obese, has no hypertension, and has no diabetes mellitus. He had been in excellent health until struck suddenly by his infarction. What is your opinion as to the advisability of keeping him indefinitely on anticoagulant therapy?* *M.D., Arizona.*

Answer.—The question of whether the patient above described should be kept indefinitely on anticoagulant therapy cannot at present be conclusively answered. Patients may have one myocardial infarction and live for 20 years or more without a second one. It would seem in such cases that prolonged anticoagulant therapy would represent a large and unjustified investment in time, money, and care. However, this is not the usual story, and most patients who have one myocardial infarction suffer a series of subsequent thromboembolic episodes, some of which may be myocardial infarctions and others involve the peripheral arteries of the brain, the extremities, the kidneys, and other parts of the body. Evidence is accumulating that suggests that patients remaining on long-term anticoagulant therapy after their first or after subsequent myocardial infarctions have a definitely better prognosis in terms of future thromboembolic complications than patients who are not kept on this therapy. The present patient seems to be suitable for this approach, especially in that he does not have hypertension. The family history in this patient might be important. If numerous members of his family have suffered thromboembolic conditions, this would favor the use of long-term therapy, especially in view of his youth. The geographical and economic factors are also of importance. If good anticoagulant therapy is easily available to the patient and if he can afford it, such care is probably justified in the light of the present knowledge. Certainly if he should suffer a second thromboembolic episode this would be indicated, if at all possible. The risk of waiting for the second episode to occur is, of course, a considerable one since it might be fatal or produce permanent disability.

VITAMINS AND IRON FOR ATHLETES

To the Editor:—*I am the athletic physician of a university and have been interested in the nutrition of athletes. It has been customary here to give daily to each football player a combination of vitamins and iron such as perihemin. In my opinion, this is an unnecessary expenditure of money and of little value as these athletes get an abundance of food and a well-balanced menu.* *M.D., Florida.*

Answer.—The Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association, in March, 1955, expressed its opinion on the mass administration of vitamins to athletes and other related practices. Its resolution states, "In 1953 the Joint Committee on Health Problems in Education, with reference to the influence of oxygen administration to athletes, concluded that 'valid scientific evidence in support of the value of oxygen in athletic competition is lacking.' The committee was of the opinion then, and continues to feel, that the anticipation of help from oxygen might encourage the athlete 'to exert himself beyond the limits he has learned to expect from instinct and experience,' and, therefore, recommended 'that the use of oxygen for such purposes be disapproved.' Instances similar in nature have been reported involving the administration of drugs to stimulate athletes to greater activity or to narcotize an injured part for purposes of continuing play. These practices, along with mass medicine such as the administration of vitamins and other products, in the opinion of the committee, constitute poor medicine and worse education. They likewise represent an unfortunate ethical practice. The committee, therefore, believes that such practices should be disapproved."

VACCINATION AGAINST POLIOMYELITIS

To the Editor:—*In a query in* The Journal, *June 18, 1955, page 619, about postponing mass vaccination against poliomyelitis until next winter, the consultant said: "There are many reasons why vaccination might better be done in the winter rather than in the poliomyelitis season." Please discuss this question.* *M.D., New York.*

Answer.—The reasons why vaccination might better be done in the winter rather than in the poliomyelitis season are basically those that would seek to avoid any complication arising from injections made in an area while poliomyelitis is prevalent. Among them are given a few. 1. A variety of injections, especially those made by the intramuscular route, appear to induce paralytic poliomyelitis in persons who otherwise escape without distinct paralysis. This apparently is most likely to occur in children during presumed viremic stage of infection with a result that there is a localization of paralysis in the area of injection. 2. Since the purpose is to achieve as high a degree of resistance as possible from vaccination in advance of exposure to poliomyelitis, it is evident that in order to obtain the preventive effect, vaccination should be done before the period of exposure. Hence, the period of vaccination can be prolonged if begun in the winter, and a higher degree of resistance can be effected by summer. 3. Enhanced resistance established in the winter could be further boosted by natural exposure in the summer.

ANGIONEUROTIC EDEMA

To the Editor:—*May I have the latest treatment for angioneurotic edema?* *F. S. Marnell, M.D., San Diego, Calif.*

Answer.—There is nothing new in the treatment of angioneurotic edema. Simple palliative treatment consists of the use of antihistamines. In some cases ephedrine may be additionally helpful. In acute cases, or in edema of the larynx, epinephrine intramuscularly may be advisable. Cortisone, hydrocortisone, meticorten, or corticotropin (ACTH) may be advisable in obstinate cases. However, these drugs require several hours to a couple of days to produce effect. In some instances the use of nonspecific therapy may be helpful. Of course, the possibility of an allergy to a drug or food should be investigated.

PSORIASIS

To the Editor:—*What does chemical analysis of the scales of psoriasis reveal? Is there any evidence suggesting that psoriasis may be a metabolic disorder or that it may be related to a lipodystrophy?* *M.D., Pennsylvania.*

Answer.—In Rothman's new book, "Physiology and Biochemistry of the Skin," University of Chicago Press, 1954, it is said that normal stratum corneum cells contain high levels of cystine: psoriatic scales contain less cystine but more cysteine and methionine (S-H groups). In psoriasis the normal ratio in the skin of the amino acids histidine, lysine, and arginine, 1:6:7, is converted to 1:6:15 with the relative amount of arginine more than doubled. Ash content is increased in psoriasis as in all inflamed skin; the water content and chloride values are increased, and the potassium values are almost doubled. More carbon dioxide is delivered through psoriatic skin than through normal skin. As evidence of a metabolic factor in psoriasis are the following conditions: a deficiency perhaps in the phosphorylation of glucose content of the uninvolved skin of psori-

---

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

atics, reports of increased levels of plasma lipids in some patients with psoriasis, a reduction of alpha, lipoproteins, and an increase in beta lipoproteins in several patients with psoriasis as determined by paper electrophoresis of plasma.

SEVERAL DRUGS GIVEN SIMULTANEOUSLY

To the Editor:—*It is common hospital practice to administer several drugs of different actions simultaneously. Does interaction among these different drugs occur in the stomach contents so as to alter the physiological and pharmacological properties of these drugs?*

Aaron M. Lefkovits, M.D., Memphis, Tenn.

Answer.—This is a difficult question to answer since no definite chemical or biological types of drugs, or even groups of agents are given. Therefore, on purely theoretical grounds, one would expect the following agents with different actions to be altered to such an extent that their "usual" pharmacological level of activity could not be anticipated, viz: hydrochloric acid and the antacids; penicillin and oxidizing agents; tannic acid and salts of heavy metals; alkaloids and salts of heavy metals, as well as halides, carbonates, hydroxides, salicylates, benzoates, and borates; glycosides are incompatible with alkalis, mineral acids, and enzymes; ferric and ferrous salts are incompatible with tannic or gallic acids; fixed oils form soaps with hydroxides; and resins are precipitated from alcoholic solutions. It is recommended that the following substances be prescribed alone: strong mineral acids and alkalis, alkaloids, arsenic, iodides, iron, mercury and silver salts, methenamine, salicylates, and tannic acid.

Reference

Goodman, L. S., and Gilman, A.: Pharmacological Basis of Therapeutics: A Textbook of Pharmacology, Toxicology, and Therapeutics for Physicians and Medical Students, ed. 2, New York, the Macmillan Company, 1955, pp. 1774-1775.

HYPERTENSION

To the Editor:—*I have been using rather conservative doses of antihypertensive drugs in the treatment of hypertension. I am under the impression that there has been an increased incidence of coronary insufficiency in my patients. Are there any controlled studies bearing on this subject?*

M.D., Pennsylvania.

Answer.—The published evidence and much that is unpublished suggests that it is unusual for myocardial ischemia or coronary insufficiency to be elicited or to be increased by the antihypertensive drugs. This statement is contingent on the condition that the drugs are used carefully. Large overdose, say of hexamethonium, could easily induce insufficiency, but this is an abuse, not a use, of the drug. An example of the published reports is that of A. E. Doyle and J. A. Kilpatrick (Methonium Compounds in the Angina of Hypertension, *Lancet* 1:905-908, 1954).

BULLOUS LESIONS

To the Editor:—*A 4-year-old girl developed large bullous lesions of both feet after wearing a new pair of patent leather shoes. Where can I have her shoes tested to determine the cause of this condition?*

Earl T. McGhee, M.D., Dalton, Ga.

Answer.—If the chronologic relationship between the wearing of the new pair of patent leather shoes and the first appearance of large bullous lesions of both feet is certain, it is highly probable that the eruption was due to an allergen or irritant in the shoes. As a rule dermatitis produced by an allergy to ingredients of shoes appears on the dorsa of the toes and foot, especially the dorsum of the great toe and on the pressure areas on the sole of the foot, rather than between the toes, as is most common in fungous infections. The only way to test the thesis is to apply patch tests to the patient with the various materials of the shoes by cutting out small pieces and applying them with proper patch-test technique. The problems and technique of testing are outlined in many places in the dermatologic literature, such as "Dermatology: Essentials of Diagnosis and Treatment," by Sulzberger and Wolf (Chicago, Year Book Publishers, Inc., 1952). An excellent article devoted to the particular subject of shoe dermatitis is that by Harry Shatin and Milton Reisch (Dermatitis of the Feet Due to Shoes, *A. M. A. Arch. Dermat. & Syph.* 69:651-666 [June] 1954).

HYDATIFORM MOLE

To the Editor:—*Please outline the follow-up care of hydatiform mole? The patient is doing well three days after a dilatation and curettage. I plan to check a quantitative Aschheim-Zondek test at monthly intervals. Is a Papanicolaou stain or vaginal smear of value in these cases? Would testosterone increase chances of prevention of growths of any remaining mole fragments?*

M.D., Arkansas.

Answer.—The danger of malignancy following a hydatiform mole is low. The pathological grading of the mole and curettings will be helpful in prognosis. The qualitative tests for chorionic gonadotrophin will usually be negative by one month post partum; if positive, a quantitative test may be done. Persistent or irregular bleeding with subinvolution of the uterus are positive clinical signs. If all are negative and normal menstrual bleeding ensues, one or two further qualitative chorionic gonadotrophin tests should be sufficient. Because a new pregnancy will confuse the follow-up, a period of six months should elapse before pregnancy is advised. Occasionally, in the presence of chorioma, the Aschheim-Zondek test may be negative and then turn positive. Should there be clinical signs of subinvolution and bleeding with a high quantitative Aschheim-Zondek test and rising titer, another dilatation and curettage may be helpful, bearing in mind that invasive moles may not be accessible to the curette. The main feature of any follow-up or therapy is conservatism. This consultant knows of no study reporting the relationship between cytological smears and prognosis after molar abortions. Similarly, cases have been reported where testosterone has been used in the treatment (empirical) of choriocarcinoma with metastases, but there is no indication for its use in this case.

SULFATHIAZOLE

To the Editor:—*Is sulfathiazole a dangerous drug? Should its use in the forms of suppositories (for vaginal infections) or chewing gum be continued?*

Robert N. Monfort, M.D., East Lansing, Mich.

Answer.—The use of sulfathiazole has been virtually abandoned in favor of equally effective and less toxic sulfonamides. Experience gained in World War II has shown that the use of crystalline sulfonamides and of sulfonamide ointments, lotions, and creams as topical agents was not successful in the management of wound infection or in treatment of infections of the skin or mucous membranes. Vaginal suppositories and chewing gum containing sulfathiazole are probably of little or no value and carry some risk of producing sensitivity reactions.

COLORED SOCKS

To the Editor:—*I have heard patients advised not to wear colored socks on feet injured with lacerations because the dye may be absorbed through the wound. Please comment on this.*

M.D., Washington, D. C.

Answer.—Finished dyes intended for textile use are comparatively harmless for garment wearers, although in the intermediate stages of dye manufacture distinctly harmful exposures could appear. The reservation in the foregoing statement relates to possible sensitization leading to allergic responses. Almost any chemical may prove to be a sensitizer for a few persons. Most sock dyes will fade on washing, and bleeding under the action of perspiration sometimes discolors skin. Many physicians in treating fungal infections and other open skin lesions of the feet often recommend that patients wear only white socks. Precise justification for this may not be well founded. In a few instances, dermatitis has been attributed to socks, but this does not warrant a quick conclusion that either the dye or the basic yarn, such as nylon, is the source. Yarns may be treated with a variety of finishing substances, some one or more of which may prove to be the offender. With lacerations of the feet, wearing of colored socks involves no common peril. Pyogenic infection is more of a prospect, and in the presence of any substantial laceration or abrasion, the assumption is that a suitable bandage or other protection would be applied.

ATRESIA OF AUDITORY MEATUS

TO THE EDITOR:—*A male child was born on June 26 with an imperforate external acoustic meatus on the right. The right ear is only about half the size of the left, and the tragus seems to occupy the position of the meatus. The child seems relatively normal otherwise. When should treatment be instituted, and what treatment is likely to give the best results?*

Leslie A. Lambert, M.D., East Tawas, Mich.

ANSWER.—Congenital atresia of the external auditory meatus is usually associated with a normal inner ear and cochlear nerve; therefore, the plastic construction of an external auditory meatus with a substitute tympanic membrane generally results in a useful improvement as well as improved cosmetic appearance. Due to the anomalous structures this operative procedure offers certain technical difficulties so that it should be undertaken only by an otologist experienced in endaural surgery. Since the child referred to has a normal ear on the opposite side, he will develop speech at the normal age, and there is no urgency in correcting the atresia. The operative procedure is more readily done when the child is around the age of 12 than in younger children. Following the creation of a patent meatus, further plastic surgery can be considered if indicated, to improve the cosmetic appearance of the auricle.

PIGMENTATION IN PULMONARY DISEASE

TO THE EDITOR:—*Please discuss pigment of the face and trunk in chronic pulmonary disease. I refer to a diffuse tanning effect that may be seen in far-advanced lung disease and not merely cyanosis.*

Edward Shanbrom, M.D., West Haven, Conn.

ANSWER.—Pigmentation of the body as a result of, or coincident with, disease of the chest is uncommon. Perhaps the most common cause is an involvement of the adrenals by amyloidosis or atrophy along with a coincidental heart or lung involvement. Such involvement may be one of several types. It may be first, a caseous tuberculosis of the adrenals along with a chronic pulmonary tuberculosis. This combination is rare. Brown (cited in Rountree, L. G., and Snell, A. M.: A Clinical Study of Addison's Disease, Philadelphia, W. B. Saunders Company, 1931) observed only two cases of Addison's disease in 2,570 patients, while Bronfin and Guttman (*Am. Rev. Tuberc.* 31:1, 1935) found only two cases in 4,500 patients. More common, but still rare, is amyloidosis of the adrenals. In 100 autopsies of chronic pulmonary tuberculosis, Bronfin reported 18 with amyloid disease, 14 of which had amyloidosis of the adrenals, mainly in the cortex. There were five that had pronounced symptoms of Addison's disease (adrenal cortical hypofunction) with some freckling and/or pigmentation of the forehead, nose, and sometimes the face, neck, and trunk. There was not the usual type of pigmentation seen in Addison's disease like the pigmented mucosa, periorificial, and extensor surfaces. Only sallowness or tanning of the face and chest and freckling, which was usually ascribed to heliotherapy by the patients. Five other cases had some symptoms, but only one had any pigmentation of the skin. The relationship of pigmentation to destruction of the adrenals is not constant. Sometimes there may be what appears to be complete destruction of the cortex with few or no signs of pigmentation. It is possible, as Bronfin stated, that it may depend on the destruction of the medulla rather than the cortex. Chromaffin tissue elsewhere may play a role. Still more uncommon is adrenal disease with pigmentation that may be due to primary atrophy of the adrenals caused by tumors (Hodgkin's, hypernephroma, and other masses) that may press on the organ and cause its destruction. Hypothetically, longstanding passive congestion may cause pigmentation of the skin as in mitral stenosis and especially inflow stasis caused by partial obstruction of the superior vena cava as in Hodgkin's disease or benign tumors.

MYOCARDIAL INFARCTION AND WORKMEN'S COMPENSATION

TO THE EDITOR:—*What is the consensus regarding the relationship of effort and myocardial infarction, with reference to the Workmen's Compensation Act?* *M.D., New York.*

ANSWER.—The tendency has been to use the term "myocardial infarction" unqualified in any way. One thus does not concern himself with the distinction between infarction due to coronary occlusion and infarction in the presence of a patent coronary artery. Dr. Arthur M. Master and his associates insist that this distinction must be made because, when there is no acute occlusion, the necrosis or infarction is subendocardial, and, as in angina pectoris, it is precipitated by effort and, therefore, is compensable. On the other hand, his group has amassed a good deal of evidence to show that coronary occlusion is not affected by events in the external environment, and occurs as an end-result of longstanding atherosclerosis, irrespective of what the patient is doing or what is his state of inactivity. In general, internists and cardiologists believe that effort does not precipitate myocardial infarction due to coronary occlusion. However, many believe that this may occur on very rare occasions. They cite a case or two, for example, in which a man had occasion to perform severe physical exertion and developed chest pain or pressure, with all the clinical and electrocardiographic evidence of a coronary occlusion. However, most pathologists feel that a coronary occlusion takes hours to weeks to form and that the effort in this particular instance merely made the pain more severe or apparent. In other words, the effort and coronary occlusion were coincidental and were not causally related. Hence, we have a group, as exemplified by Dr. Master and his associates, who believe that the classical coronary occlusion is never precipitated by effort, a group who feel it is precipitated in the rarest of instances and, finally, a group who feel that effort frequently causes coronary occlusion. Dr. Ernst Boas was the chief exponent of the last group. Medical witnesses who belong to groups 2 or 3 would influence a referee board to rule that the coronary occlusion is compensable. Since the tendency is to give the workingman every "break," his case would probably be judged compensable no matter what is the physician's opinion as to the relationship of physical exertion and myocardial infarction.

FEEDING PROBLEM CHILD

TO THE EDITOR:—*Kindly outline the solution of a feeding problem in a 4½-year-old otherwise normal child. She refuses to eat unless fed. The parents are concerned about malnutrition if they follow my advice of only allowing the child to feed herself.*

M.D., Pennsylvania.

ANSWER.—Insistence on being fed is an infantile manifestation. You are absolutely right in your advice of only allowing the child to feed herself. Hardly ever will such a child go over three days, and there is no danger of malnutrition. However your problem is more to treat the parents than the child. Change her environment at meal time as completely as possible, as in new surroundings a new habit can be started sooner. Change the place of eating, change the dishes, and change the person who serves her. It should be made clear to her that she is making a new start in life. Solid foods that require chewing and which, at the same time, she is known to enjoy should be offered. Raw vegetables and fruits are well suited for this purpose. Give her a dull-edged knife to practice cutting soft foods. Well-cooked meat or potato may be tried, and let her spread her bread with butter or jam. She is also old enough and will be greatly benefited if she can eat with children her own age as at a kindergarten or nursery school. If cooperation at home is not satisfactory a short stay in a hospital, obviously without the parents, will accomplish the desired results.

ESTROGENS AND CORONARY DISEASE

To the Editor:—*I have read that decreased estrogenic production in postmenopausal women is statistically correlated with clinical coronary artery disease. Is there any correlation between the frequency and severity of coronary artery disease in young women after the induction of an artificial menopause? Some sources state that hormone studies have demonstrated a comparable metabolic disturbance to that in women undergoing normal menopause. The problem of hysterectomy and its disturbances of the endocrine and cardiovascular system is of particular interest to me.* *M.D., California.*

Answer.—Experiments in chicks have suggested a favorable effect of ovarian hormones on experimentally produced coronary arteriosclerosis, and according to Wuest, Dry, and Edwards (*Circulation* 7:801, 1953) the hearts of bilaterally oophorectomized women showed at autopsy arteriosclerosis of a greater degree of severity than did controls. There is no reason to expect that hysterectomy would have any influence on coronary sclerosis.

TRICHINOSIS

To the Editor:—*Someone, supposedly an authority, has said that lamb or mutton may be infested with Trichinella. I am not aware that any animal but swine harbors this parasite. Is this so?* *J. J. Blue, M.D., Cedarville, Mich.*

Answer.—Trichinosis is found in such carnivorous animals as the hog, rat, dog, cat, fox, bear, marten, and mongoose, but there is no authentic record of the disease appearing in herbivorous animals. Infection in sheep would be most unlikely, although sporadic cases could not be definitely ruled out.

SEROLOGIC TESTS

To the Editor:—*In reading the query regarding serologic tests* (J. A. M. A. **158**:*1235 [July 30] 1955), I would like to mention an instance in my practice in which a multiparous patient (no change of spouse) whom I had previously delivered has come up with a similar situation. In order that the matter be finally settled, a Treponema immobilization test was performed (TPI) that indicated that syphilis did not exist since there was no reaction. This patient had always had negative serologic tests before, and the present pregnancy was the one in which a positive Kahn test was reported with eight Kahn units. From the result in this particular case, it would seem the TPI test is a final port of call to rule it in or rule it out.*

H. A. Hartman, M.D.
Kankakee, Ill.

WETTING AGENTS IN ANTIBIOTIC MISTS

To the Editor:—*The Queries and Minor Notes section, April 30, page 1665, of* The Journal, *contains a discussion on aerosols. While I agree with the opinion about antibiotics, I would like to comment on detergent aerosols on the basis of long experience with these agents. Alevaire, containing one of the Tritons, was stated to be very irritating due to a pH of 10.0. Actually the pH of Alevaire is about 8.2 and is obtained not from Triton but from 2% bicarbonate of soda. Otolaryngologists have been using 2% to 5% solutions of sodium bicarbonate to liquefy mucus by instillation through tracheotomy tubes and bronchoscopes for decades, and it is a safe, nonirritating, accepted therapy in medical practice. I have used Alevaire on many patients, from 2 lb. (907.2 gm.) premature infants to elderly patients with bronchiectasis, over a five year period, and have never noted irritation. Judging from the more than 100 clinical papers mentioning the use of Alevaire it undoubtedly has been used hundreds of thousands of times. As far as I know, irritation is not reported in any of the articles. The only effect I have noticed, which can hardly be called irritation, is the sensation noticed by the patient on breathing the aerosol for the first time. The unaccustomed impingement of droplets and air stream of any aerosol, even water, on the palate and pharynx may cause a transitory uncomfortable sensation. This disappears after about five inhalations. I have tried in every way without success, to produce some toxic effect with aerosols of superinone (Triton WR1339), the detergent in Alevaire. Not the slightest respiratory difficulty occurred with the highest concentration in newborn hamsters who were born in the concentrated mist and lived exclusively in it 24 hours a day for six months. Under my care are several children who always sleep in an Alevaire mist. One boy with mucoviscidosis has been sleeping in it 8 out of every 24 hours for four years, with no toxic effects and excellent prophylactic results, On the other hand, many enzymes and detergents, including Duponal C mentioned in* The Journal *discussion, are so irritating that they cause a chemical bronchopneumonia, hyperemia, and edema of the lungs. Animals have died in three hours by having them breathe Duponal C in concentrated aerosol solutions. If reduced in concentration to a point where they are relatively nontoxic, they not only produce little beneficial effect, but may still cause some bronchial irritation.*

Contrary to the opinion expressed in The Journal, *drowning during aerosol therapy is impossible. The human lungs have a tremendous surface area, as large as a double-sized tennis court, and can absorb large quantities of fluid. Winternitz and Smith* (Proc. Soc. Exper. Biol. & Med. **16**:*55-56, 1919) have shown that dogs can tolerate tremendous amounts of fluid insufflated into the lungs. According to these investigators 20 cc. of water per kilogram of body weight can be instilled into the lungs without any harm. Potter (Report of the Fifth M&R Pediatric Research Conference, Columbus, Ohio, M&R Laboratories, page 53) rapidly instilled 150 cc. of water into a rabbit's lungs without respiratory embarrassment. She immediately removed the lungs. They weighed only 35 gm., indicating absorption of the fluid almost as fast as it had been injected. The vast majority of papers already published on Alevaire attest to its clinical effectiveness. It is excellent and unique for decreasing the surface tension of secretions and plugs, thus allowing them to be more easily expectorated or withdrawn by aspiration. This effect can be dramatically demonstrated by administering Alevaire (10 cc.) to a group of bronchiectatic patients one hour a day for two weeks and observing their sputum daily. The sputum invariably changes from a thick yellow or green material, difficult to expectorate, and accompanied by dyspnea and hacking cough, to a thin, watery material that is easily expelled. Expectoration will totally disappear in most cases and in others be reduced to a minimum amount that is not accompanied by respiratory difficulty. Detergent aerosol therapy is a relatively new and unique therapeutic concept that requires special techniques and equipment for administration. However, it has been my experience that most physicians, both general practitioners and specialists, are rapidly becoming familiar with the techniques and are finding them valuable in their practice.*

Joseph B. Miller, M.D.
904 Dauphin St.
Mobile, Ala.

HYPOPHYSECTOMY

To the Editor:—*In* The Journal, *June 18, 1955, page 620, is a query on hypophysectomy for metastatic malignancy. In answering, the consultant states that in most cases of hypophysectomy the "only substitute therapy required is the simple administration of thyroid substance." A totally hypophysectomized patient cannot be managed in this way. These patients require adrenocortical hormone replacement in order to maintain life. The most reliable criterion that total hypophysectomy has, in fact, been accomplished is the rapid development of adrenocortical insufficiency when these hormones are withdrawn. Patients who survive this operation without the development of adrenocortical insufficiency have been proved to be incompletely hypophysectomized. The administration of thyroid hormone, on the other hand, is not essential for the maintenance of these patients, although it contributes greatly to their comfort by preventing the development of myxedema.*

Raymond C. Mellinger, M.D.
Henry Ford Hospital
Detroit 2.

THE JOURNAL

of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 159, NO. 8 CHICAGO, ILLINOIS OCTOBER 22, 1955

COPYRIGHT, 1955, BY AMERICAN MEDICAL ASSOCIATION

LIVER DECOMPRESSION BY COMMON BILE DUCT DRAINAGE IN SUBACUTE AND CHRONIC JAUNDICE

REPORT OF SIXTY CASES WITH HEPATITIS OR CONCOMITANT BILIARY DUCT INFECTION AS CAUSE

Alfred A. Strauss, M.D., Siegfried F. Strauss, M.D., Arthur H. Schwartz, M.D.
William J. Tannenbaum, M.D., David D. Kram, M.D.
and
Walter W. Masur, M.D., Chicago

The possibility of using surgical decompression of the ductal system of the liver for relief of chronic jaundice resulting from subacute and acute hepatitis, usually due to a virus infection, first suggested itself to us many years ago when we were doing surgery in cases of congenital atresia of the bile ducts.[1] We found that atresia, or absence, of the excretory bile ducts in these newborn infants produced not only jaundice but also a marked increase of the connective tissue in the liver, causing cirrhosis. This we ascribed to the irritation secondary to biliary stasis. Even in extremely pronounced cases of jaundice where exploration revealed a large liver, deeply pigmented, with an increased amount of connective tissue, we were able to establish good biliary drainage within a few days if the intrahepatic ductal system was patent. A biliary fistula was formed by placing a catheter into the hilus of the liver proximal to the atresia. After jaundice had disappeared, secondary operations could then be done at a later date. For one or two days the fistula would yield a thin water-clear fluid that probably represented the mucous secretion of the ducts. Due to the increased intraductal pressure, the liver cells cannot function until the pressure is relieved by intraductal drainage. After 24 to 48 hours of decompression, the bile assumes its normal color and the jaundice subsides. Within a few months a definitive operation of the Roux Y type can be performed.

TYPES OF CASES BENEFITED BY SURGERY

We feel that insufficient consideration has been given to the surgical approach in the treatment of jaundice resulting from acute and subacute hepatitis on an infectious basis—by that we mean drainage of the common bile duct and decompression of the liver. The pathological process in many instances is not only confined to the liver but there is also inflammation and infiltration of the entire ductal system. This inflammation may vary in intensity; sometimes it may become so severe that a partial obliteration of the smaller ducts and also of the common bile duct is caused. It has been shown that the disease frequently originates not in the liver but in the bile ducts. We have seen, in patients with jaundice of long duration, infiltration of the distal portion of the common bile duct and of the papilla, causing dilatation of the ducts to three or four times their normal size. When these ducts are opened, bile mixed with pus escapes in large quantities. Depending on the chronicity of the process, more or less bile pigment will be present.

Clinically we have encountered three groups of patients with chronic jaundice or biliary stasis: first, those with severe colic-like attacks of pain; second, those without acute attacks and with mild jaundice; and third, those with a deep, silent jaundice. The jaundice in several patients of the second group was so minimal, the only presenting symptom being itching of the skin, that the condition therefore escaped diagnosis for some time. In all these three groups, the pathological condition consists of an inflammatory process in the distal portion of the common bile duct and in the papilla of Vater, producing infiltration, thickening, and finally narrowing of these structures. The intensity of this process may vary; at times it may involve the entire ductal system up to the finest biliary radicals.

In cases of acute and subacute hepatitis, usually due to a virus infection, the liver is usually larger than normal and edematous. Its color ranges from yellow to dark green in the more severe cases. In hepatitis of longer duration but of milder degree, the liver shows a marked increase in the interlobular connective tissue, which produces a picture ranging from a mild cirrhosis to that of

---

From the surgical services of Michael Reese Hospital, Louis A. Weiss Memorial Hospital, Franklin Boulevard Community Hospital, and Mount Sinai Hospital.

The illustrations have been copied with permission of Cole and co-workers.[3]

[1] Strauss, A. A.: Congenital Atresia of the Bile Ducts, J. Mt. Sinai Hosp. 17: 552-562 (March-April) 1951.

a hobnailed liver. Histologically, in addition to the increase in connective tissue, there is marked vacuolation and destruction of liver parenchyma, which in some cases resembles a liver with subacute yellow atrophy. The pancreas varies greatly in its consistency. It can be fairly firm and lobulated, or hard and diffusely swollen. There is usually a marked degree of peripancreatitis causing firm adhesions between the omentum of the lesser curvature of the stomach and the pancreatic capsule. The lesser omental cavity is often completely obliterated.

One of our patients had a severe infiltrating duodenal ulcer near the papilla of Vater that produced intermittent jaundice for a period of 10 years. The clinical picture eventually indicated severe liver damage, with the patient stuporous and in a semicomatose condition. After several duodenal hemorrhages, the patient finally underwent surgery. The operative findings were a liver about one-third its normal size, with a hobnailed cirrhosis, in addition to a large carbuncle-like infiltrating duodenal ulcer at the papilla of Vater. We performed a high subtotal gastrectomy. For the relief of the deep jaundice that was caused by the infiltration of the papilla of Vater and of the common bile duct, we anastomosed the gallbladder to the open end of the duodenum. The patient has remained well for 20 years. This case brings out two important points: 1. The liver cirrhosis was caused by an infiltrating duodenal ulcer of long standing that produced recurrent infections and obstruction of the common bile duct resulting in intermittent jaundice. 2. After decompression of the biliary system, the liver apparently completely recovered physiologically, since the patient is in perfect health 20 years after surgery.

Another patient with a history of jaundice of five months' duration, also critically ill at the time of surgery, underwent drainage of the common bile duct. Biopsy of the liver showed marked degeneration of the liver parenchyma and interlobular cirrhosis. Eight weeks later, at autopsy, the liver showed areas of marked regeneration with formation of new bile ducts. This shows that even in severe cases intraductal tension can be relieved by drainage of the common bile duct and that regeneration does occur in the liver when the intraductal and intrahepatic pressure is relieved.

We believe that, in some of the patients with jaundice due to acute or subacute hepatitis who do not improve under medical management, surgery should be considered. We refer to the patients in whom, in addition to the hepatitis, inflammation of the intrahepatic as well as of the extrahepatic bile ducts is present. It is our contention that the inflammatory process produces an obstruction of the bile flow at the papilla of Vater. This in turn causes an increase of the intraductal pressure that is transmitted toward the liver parenchyma leading to further breakdown of liver cells, necrosis, and increased jaundice. If this vicious cycle is interrupted by drainage of the common bile duct, excretion of bile will take place followed by improvement of liver function, leading eventually to complete alleviation of the jaundice. Frequently in such instances, not only the wall of the common bile duct is infiltrated and thickened but also the surrounding areolar tissue. The extreme hyperemia represented by many small blood vessels makes the identification and dissection of the common bile duct quite difficult. There is usually a large amount of bleeding from this hemorrhagic area during the dissection. In occasional cases, when the involved structures have been small, we have used special magnification eyeglasses. In many instances we were able to insert only the smallest catheter, usually employed on premature infants. A regular French catheter, with its tip cut off to insure better drainage, is sutured into the common bile duct, pointing toward the liver. Since such a catheter has to remain in place for a considerable length of time, sometimes for a period of six months, we use silk for suture material. Ordinarily, for one or two days, only a small amount of a colorless, watery liquid returns from the catheter, but, after this, a steady flow of bile begins, ranging at first from 60 to 90 cc., until, in the second postoperative week, 300 to 500 cc. of good normal bile is recovered in a 24 hour period. This is due to the relief of the intraductal pressure against the liver cells. Concomitantly, the clinical condition of the patient improves and the jaundice decreases. Liver function tests usually return to normal within several months. A typical case history of a patient with subacute hepatitis with severe jaundice illustrates this.

REPORT OF A CASE

A 26-year-old man was first admitted to the hospital with clinical and laboratory findings of fairly severe acute hepatitis with jaundice. Under a conservative regimen he improved sufficiently to be discharged at the end of five weeks; however, after three weeks at home, his jaundice increased again, and he was returned to the hospital approximately eight weeks from the known onset of his disease. His liver at that time could be palpated three fingerbreadths below the costal margin, and liver function tests showed a relapse of the hepatitis. On the day of readmission, the serum bilirubin reached a level of 40 mg. per 100 cc. The cholesterol ester fraction had decreased steadily, and four days after admission it was zero. Whereas urobilinogen had been present in considerable amounts in the urine and in the feces during the period of remission, it had now disappeared completely. The abdominal findings were much more pronounced during the second hospital stay; the liver was larger and more tender, and the spleen could now be easily palpated. The patient's clinical condition continued to deteriorate, with the patient mentally depressed and drowsy. Therefore, after the patient had been in a continuously jaundiced condition for almost three months, we decided, in consultation with the internist, to do an exploratory laparotomy with common bile duct drainage.

The operative findings were severe infiltration of the entire hepatoduodenal area involving the bile ducts as well as the periductal areolar tissue. The liver was markedly enlarged and firm. The gallbladder was small and empty. Exposure of the common bile duct met with great difficulty. There was a considerable amount of bleeding from the small blood vessels within the periductal tissue. The lumen of the common bile duct was very small and empty. Thus, it was necessary to use the smallest catheter available, which was the catheter used on premature infants. This was passed into the proximal portion of the duct and sutured with silk. Within 24 hours, the usual watery, lightly colored bile appeared, being 150 cc. in volume. Twenty-four hours later the bile was almost normal in color and character. On the fifth postoperative day there was 360 cc. of normal looking bile, and this increased steadily until, finally, up to 780 cc. was excreted in a 24 hour period. This again proves that, when the intraductal pressure against the liver cells is relieved they will start functioning. This relief is accomplished by drainage of the common bile duct. At the same time that the jaundice gradually decreased, liver function tests returned to normal, and the patient left the hospital in excellent condition three months after the operation. Now, two years later, the patient is well, and there has been no recurrence of the disease.

It seems to us that the impaired outflow of bile from the infiltrated ductal system causes intraductal pressure and enough back pressure in the liver against the liver cells to interfere with the normal function of the liver cells and that drainage of the common bile duct will relieve this tension, thus contributing to the establishment of a normal bile flow. Irrigation of the catheter is ordinarily unnecessary, except when a mucous plug or sediment obstructs the passage of bile once drainage has started.

EVALUATION OF CASES

From a series of 26 operative cases of this type, 4 patients were not relieved of their jaundice and died several months later; the remaining 22 made a complete recovery. They are well, and their liver function tests are normal. We will concede that some of these patients might have recovered without our resorting to surgical drainage of the common bile duct; however, we feel that the recovery rate in this series could not have been attained by medical therapy alone. All these patients had had an adequate trial period of medical treatment and were in poor condition at the time of surgical consultation; some of them were semistuporous, with liver function tests indicating extreme liver damage.

Another type of subacute or chronic hepatitis has its basis primarily in an infection of the common bile duct and the papilla of Vater. In time such a duct will become thickened and infiltrated. At laparotomy there is usually tremendous enlargement and dilatation of the common bile duct. Exploration of the duct reveals a large amount of serous to seropurulent exudate. On probing the duct one encounters difficulty in passing through the papilla of Vater, indicating an obstructive process at that site. Patients with this type of disease as a rule recover much more quickly from their jaundice and hepatitis than those who primarily have hepatitis. In some of these cases of long-standing (three to six months) the patients pass postoperatively into a phase of acute hepatitis that clinically resembles acute yellow atrophy of the liver. This happened in one case in our series of 34 patients where the autopsy findings were that of an acute necrosis of the liver with acute yellow atrophy. The other 33 patients recovered uneventfully. In 1933 [2] we reported a series of 58 cases of subacute or chronic jaundice due to cholangitis and infiltration of the papilla of Vater causing biliary stasis. At that time we recommended drainage of the common bile duct. If jaundice recurred after this procedure, we advised choledochoduodenostomy with gastroenterostomy. In recent years we have treated such cases of recurrent jaundice after common duct drainage with a Roux Y operation.

SURGICAL TECHNIQUE

Recurrent jaundice following common bile duct drainage means contraction and infiltration of the distal portion of the common bile duct and of the papilla of Vater due to connective tissue formation. The best operative procedure to relieve this type of jaundice is the one-arm Roux Y operation as described by Cole, Ireneus Jr., and Reynolds.[3] In some of our earlier cases, where we used rubber catheters of various sizes for an anastomosis between the liver or the hepatic ducts and the jejunum, we were able to establish permanent bile drainage. These patients are still living and well. In later years we began using the vitallium tube described by Pearse [4] for choledochojejunostomy and in surgical procedures for congenital atresia of the bile ducts. We found the vitallium tubes more satisfactory, but even some of these were expelled into the intestinal tract. As a consequence of this experience, we designed a vitallium tube with sharp prong-like projections at the upper end (fig. 1, 2, and 3), and we are using this tube at the present time. When the tube is placed into the hilus of the liver, the prongs pierce the surrounding tissues so that it is almost impossible to dislodge the tube from its position. This has been successfully employed in several patients.

The opening in the common bile duct or at the end of the common bile duct as it enters the liver is dilated. The vitallium tube is inserted into this opening, and silk purse-string sutures are used to fasten the tube (fig. 1). A loop of jejunum about 14 to 16 in. from the ligament of Treitz is divided. An end-to-side anastomosis with waxed silk sutures is made between the proximal end of the divided jejunum and lower portion of the jejunum, approximately 2 ft. away from the area of transection. An opening is made in the transverse mesocolon, and the arm of the jejunum to be anastomosed to the stump of the duct, or to the hilus of the liver, is placed through this opening so as to make it retrocolic. A small opening should be made about 1 to 2 in. from the end of the closed jejunum (fig. 2*B*) and a fine forceps inserted to control the position of the vitallium tube. Interrupted sutures can then be placed in the jejunum, which is to be attached to the hilus of the liver (fig. 3*B*). Care must be taken to close this area carefully so as not to create tissue tension. The opening made in the jejunum by the forceps can then be closed. This procedure affords a double protection against the tube being dislodged: first, by the prongs fastened in the liver substance, and second,

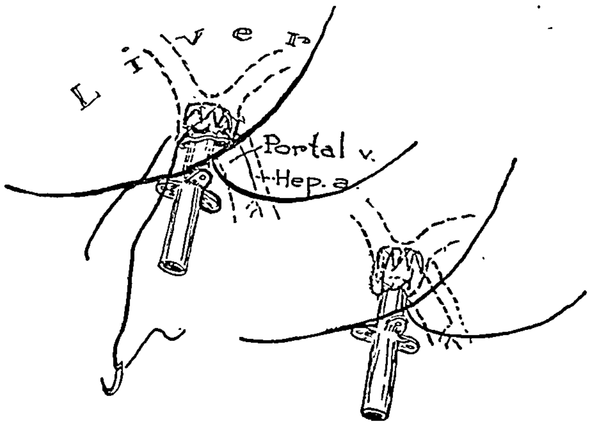


Fig. 1.—Vitallium tube lying within the hilus of the liver or within the common bile duct. The metal arms lie between the hilus of the liver and the closed purse-stringed jejunum.

---

[2] Strauss, A. A.; Strauss, S. F.; Crawford, R. A., and Strauss, H. A.: Chronic Biliary Stasis: Treatment by Choledochoduodenostomy and Gastroenterostomy, J. A. M. A. **101**: 1365-1371 (Oct. 28) 1933.

[3] Cole, W. H.; Ireneus, C., Jr., and Reynolds, J. T.: The Use of Vitallium Tubes in Strictures and Absence of the Common Bile Duct, Ann. Surg. **122**: 490-521 (Oct.) 1945.

[4] Pearse, H. E.: Benign Stricture of the Bile Ducts Treated with a Vitallium Tube, Surgery **10**: 37-44 (July) 1941. Pearse, H. E.: Vitallium Tubes in Biliary Surgery, Ann. Surg. **115**: 1031-1042 (June) 1942.

by the metal arms of the tube lying between the liver and the closed purse-stringed jejunum. In some instances we included the arms of the vitallium tube in the closed jejunum, but we found that this was not as satisfactory. The opening in the mesocolon is sutured around the jejunum and its mesentery in order to prevent a herniation of loops of small intestine with possible obstruction (fig. 3*B*). The open end of the divided jejunum is purse-stringed with waxed silk (fig. 3*A*). This purse-stringed suture is tightened around the end of the vitallium tube, emerging from the hilus of the liver (fig. 3*A*). At that point, the metal arms of the tube are between the liver and jejunum; the jejunum is then attached to the hilus of the liver with interrupted silk sutures (fig. 3*B*).

We have used the procedure suggested by Cole of making valves in the arm of the jejunum to prevent a reflux of the intestinal contents into the hilus of the liver. Usually four such valves (fig. 4) are made. Interrupted sutures are used to fold the jejunal wall into its lumen, thus forming a valve. Two small rubber drains are placed along the hilus of the liver and brought out through a small stab-type incision, as a protection against possible bile leakage. These drains are ordinarily not removed until the 8th or 10th day.

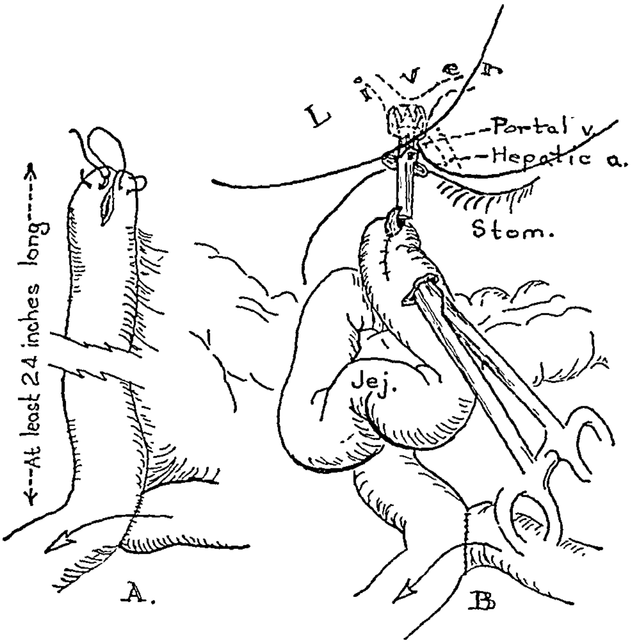


Fig. 2.—Closed blind end of the jejunum, *A*, with purse-string suture at least 24 in. from end-to-side anastomosis of jejunum and, *B*, vitallium tube in place. A forceps is introduced into jejunum to draw vitallium tube into lumen of intestine.

COMMENT

In many cases of chronic jaundice caused by an infectious process involving the duodenum, pancreas, and common bile duct, we feel that the infection might possibly start in the duodenum and then ascend into the common bile duct. The infectious process causes typical pathological changes in the lower portion of the common bile duct and in the papilla of Vater; namely, edema and infiltration that eventually lead to interference with the biliary outflow. The bile stasis created by this obstruction is transmitted into the liver and produces degeneration and vacuolation of the liver parenchyma, and, later, interlobular and periductal cirrhosis. Congenital obstruction in the common bile duct of the newborn infant illustrates such a sequence of changes. It is probable that in many patients whose cases were diagnosed as primary cirrhosis of the liver, not due to alcoholism or other chemical processes, the condition began as an infectious process in the biliary passages rather than in the liver itself. The reported history of the patient with a duodenal ulcer at the papilla of Vater that caused cholangitis, intermittent jaundice, and, finally, a hobnailed cirrhosis of the liver illustrates this point.

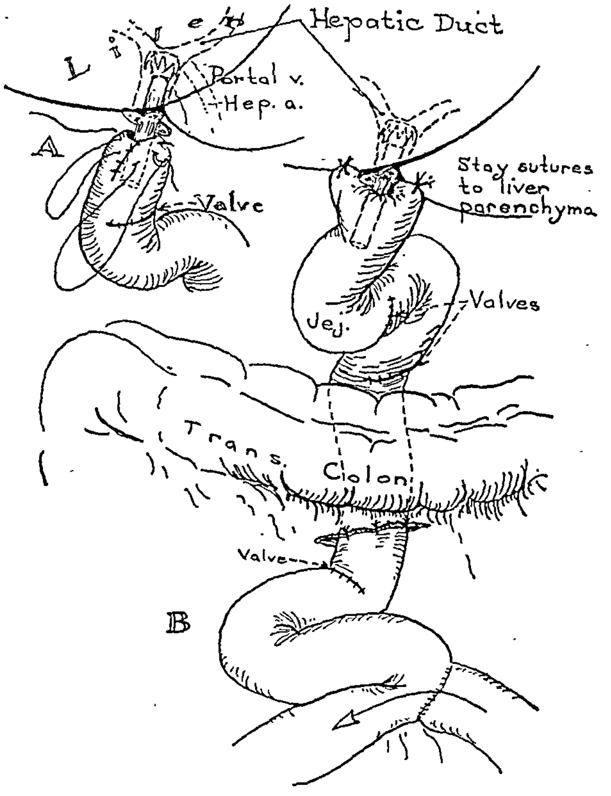


Fig. 3.—Blind end of jejunum has been passed through the mesocolon up to liver. *A* shows purse-string suture of jejunum around vitallium tube and below its arms. *B*, stay sutures attach blind end of jejunum to capsule of liver.

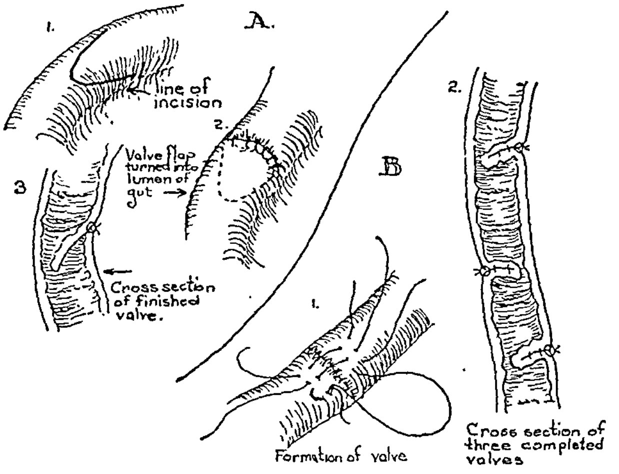

1.
A.
line of incision
2.
Valve flap turned into lumen of gut
3
Cross section of finished valve.
B
2.
1.
Formation of valve
Cross section of three completed valves

Fig. 4.—Establishment of valves in the jejunum, *A*, by flap method and, *B*, by a fold in the lumen of intestine. We prefer the latter procedure.

SUMMARY AND CONCLUSIONS

Surgical decompression of the liver and its ductal system by common bile duct drainage for a period of time until the patient is completely relieved seems to be fundamental in cases of jaundice of long standing that result from acute and subacute hepatitis, usually due to a virus infection, and in those cases in which the jaundice is due to primary ductal infection usually starting in the papilla and common bile duct and then extending up into the branches of the bile ducts into the liver cells, thereby producing a vicious circle of bile retention due to increased intraductal pressure. Common bile duct drainage relieves intraductal and intrahepatic pressure in (1) congenital atresia, (2) acute and subacute hepatitis, and (3) in cases resulting from infections of the papilla and bile ducts, probably due to an original duodenitis. In the first 24 hours only clear, watery bile is secreted from the ductal epithelium, showing that the liver cells cannot function under pressure. When this pressure is relieved, bile is secreted by the liver cells, as is shown by good bile drainage from the common bile duct catheter. Common bile duct drainage was done in a series of 26 cases of acute and subacute hepatitis with jaundice and in another series of 34 cases of cholangitic hepatitis with jaundice. The mortality rate in the first series was four and in the second series one.

If common bile duct drainage does not relieve the jaundice completely and permanently in the types of cases we have described or in those cases where the jaundice recurs after an interval of freedom, a one-arm Roux-Y operation is advocated. This has proved extremely successful.

104 S. Michigan Ave. (3) (A. Strauss).

TISSUE CULTURE ISOLATION OF COXSACKIE GROUP B VIRUSES IN ASEPTIC MENINGITIS

William M. M. Kirby, M.D.
and
Charles A. Evans, M.D., Ph.D., Seattle

It has become well established during recent years that Coxsackie group A viruses are the cause of herpangina and that group B strains are the etiological agents in epidemic pleurodynia (Bornholm disease).[1] The relationship of Coxsackie viruses to infections of the central nervous system is, however, much less certain. In many instances Coxsackie viruses have been isolated from the stools of patients shown to have poliomyelitis. Further, Coxsackie viruses are so widespread in nature that, despite isolation of these viruses from stool specimens and a rising titer of antibodies, it has been difficult to rule out the possibility that these agents were merely causing subclinical infections in patients with other diseases. On the other hand, persuasive evidence in favor of the etiological role of Coxsackie viruses in aseptic meningitis has been accumulated.[2] Particularly important is the fact that Coxsackie viruses have been isolated from the spinal fluid by at least three groups.[3] Coxsackie viruses have usually been isolated by injecting clinical specimens into suckling mice or hamsters. Until recently, these agents have not been recovered from clinical specimens by tissue culture. The present report describes a group of adults with a clinical diagnosis of poliomyelitis in whom a relatively large percentage of the infections were apparently caused by Coxsackie group B viruses. In all instances primary isolation and serologic identification of the virus was made in tissue culture.

PLAN OF STUDY

The study included 66 patients admitted to the adult infectious disease ward of King County Hospital from July through December, 1954, with a diagnosis of paralytic or nonparalytic poliomyelitis. The patients ranged in age from 13 to 38 years. All had fever, headache, stiff neck, and pleocytosis on admission. Stool specimens were collected as soon as possible after admission and were frozen until laboratory studies were performed. Serums were obtained for neutralization tests on admission and from three to six weeks later.

Methods of handling stool specimens and preparing tissue culture tubes have been described in detail elsewhere.[4] Briefly, fecal specimens were suspended in distilled water and freed of bacteria by centrifugation and the addition of antibiotics. The supernatant fluid was used for the inoculation of trypsinized monolayer cul-

---

From the departments of medicine and microbiology, University of Washington School of Medicine, and the King County Hospital.

This study was aided in part by a grant from the Office of Naval Research.

Dr. Velma C. Chambers supervised and evaluated the poliomyelitis neutralization tests, and Hilda Jean May and Sally Allard gave technical assistance.

Dr. R. T. Ravenholt, epidemiologist, Seattle-King County Health Department, assisted with collection of the convalescent blood specimens.

Coxsackie antiserums were supplied by Dr. Gilbert Dalldorf, Director, Laboratories and Research, New York State Department of Health, Albany, N. Y.

[1] Huebner, R. J., and others: Medical Progress: The Importance of Coxsackie Viruses in Human Disease, Particularly Herpangina and Epidemic Pleurodynia, New England J. Med. **247**:249 (Aug. 14) 1952; **247**:285 (Aug. 21) 1952.

[2] Curnen, E. C.; Shaw, E. W., and Melnick, J. L.: Disease Resembling Nonparalytic Poliomyelitis Associated with a Virus Pathogenic for Infant Mice, J. A. M. A. **141**:894 (Nov. 26) 1949. Shaw, E. W.; Melnick, J. L., and Curnen, E. C.: Infection of Laboratory Workers with Coxsackie Viruses, Ann. Int. Med. **33**:32 (July) 1950.

[3] (*a*) Gard, S.: "C-Virus" som orsak till "barnförlamning" utan pareser, Svenska läk.-sällsk. förhandl. **47**:285 (June) 1950. (*b*) Hummeler, K.; Kirk, D., and Ostapiak, M.: Aseptic Meningitis Caused by Coxsackie Virus with Isolation of Virus from Cerebrospinal Fuild, J. A. M. A. **156**:676 (Oct. 16) 1954. (*c*) Duncan, D., and others: Aseptic Meningitis: Isolation of Coxsackie and Unidentified Cytopathogenic Viruses from Cerebrospinal Fluid by Tissue Culture Methods, Canad. J. Pub. Health **46**:1 (Jan.) 1955.

[4] Syverton, J. T.; Scherer, W. F., and Elwood, P. M.: Studies on the Propagation in Vitro of Poliomyelitis Viruses: V. The Application of Strain HeLa Human Epithelial Cells for Isolation and Typing, J. Lab. & Clin. Med. **43**:286 (Feb.) 1954. Youngner, J. S.: Monolayer Tissue Cultures; I. Preparation and Standardization of Suspensions of Trypsin-Dispersed Monkey Kidney Cells, Proc. Soc. Exper. Biol. & Med. **85**:202 (Feb.) 1954.

tures of kidney epithelium obtained from rhesus monkeys. The cultures were observed daily for cytopathogenicity, and at least three serial passages were made before a specimen was considered negative. When cytopathogenic effects were observed, neutralization tests were carried out with the three types of poliomyelitis antiserums. Agents not neutralized by poliomyelitis antiserums were further tested against Coxsackie group B antiserums, types 1-4.[5]

In all patients, neutralization tests for poliomyelitis antibodies were performed on acute and convalescent serums, using the colorimetric assay method of Salk, Youngner, and Ward.[6] In addition, in patients from whom Coxsackie group B virus, type 2, was obtained, neutralization tests were performed against a B-2 strain, using virus obtained from one of the patients. These tests were performed with monolayer tissue cultures, using serial dilutions of patients' serums. In the patient whose stool specimens yielded Coxsackie B-4 virus, neutralization tests of acute and convalescent serums were also performed with B-4 virus.

TABLE 1.—*Virus Isolations from Fecal Specimens of Sixty-Six Patients with Clinical Diagnosis of Poliomyelitis*

Type of Patient	No.	Virus Not Isolated	Virus Isolated	Poliomyelitis			Not Typable
				Type 1	Type 2	Type 3	
All cases.......	66	15	51 (77%)	9	5	23	14
Paralytic	36	5	31 (86%)	8	4	18	1*
Nonparalytic	30	10	20 (67%)	1	1	5	13

* Poliomyelitis type 2 virus also recovered from later specimens.

RESULTS

Of the 66 patients, virus was obtained from the stools of 51 (table 1). Since in most years type 1 strains have been predominant, it was of interest that 23 (62%) of the 37 poliomyelitis strains isolated were members of type 3. It was further observed that the stools of 14 patients yielded cytopathogenic agents that were not neutralized by any of the three types of poliomyelitis antiserums. These agents were tentatively classified as "orphan" viruses. They caused rather slow, patchy degeneration of the monkey kidney cells over a period of 7 to 10 days. In contrast, the poliomyelitis viruses caused complete cytolysis within 48 to 72 hours. These differences in growth characteristics were so striking that as the study progressed it became possible during primary isolation to recognize the agents that were not poliomyelitis viruses. The possibility that more than one poliomyelitis virus was present in these specimens was excluded by the failure of a mixture of all three types of antiserums to prevent the slow, patchy degeneration. Indeed, in one paralytic case two types of poliomyelitis virus were present in a stool specimen; this was immediately suspected when rapid cytolysis occurred in the presence of each of the three poliomyelitis antiserums. Repetition of the neutralization test using appropriate combinations of antiserums established the fact that this specimen contained both type 2 and type 3 poliomyelitis viruses.

Using tissue culture techniques, essentially identical with those employed for poliomyelitis viruses, the 14 unknown strains were further identified as Coxsackie group B viruses. Of the 13 patients whose stools contained Coxsackie B-2 viruses, one was of special interest in that the first two specimens contained this virus, whereas the next three yielded poliomyelitis virus, type 2. Stools from the other patient yielded a Coxsackie B-4 strain. For these 14 patients, results of neutralization tests on acute and convalescent serums are presented in table 2. In the 13 patients whose stools yielded Coxsackie B-2 virus, a significant antibody titer against the homologous virus was present in all instances, and in most cases there was a definite rise in titer. The patient in case 14, from whom B-4 virus was isolated, showed a rise in antibody titer to this virus, but her serums contained no antibodies against the B-2 strain. Neutralization tests for poliomyelitis antibodies are also presented in table 2. In cases 1 through 5, antibodies were absent or present in low titer, indicating that these patients did not have a recent attack of poliomyelitis. This was in striking contrast to the results obtained in the 36 patients with paralytic poliomyelitis, all of whom showed a significant antibody titer with one type or another. In the other nine patients in cases 6 through 14 antibodies were present for poliomyelitis viruses. In some instances a rise in titer occurred, while in others a high titer was present in both acute and convalescent specimens. The possibility that some of these patients had recent infections with poliomyelitis virus cannot be excluded; the data are probably best regarded as inconclusive on this point. The patient in case 13, whose first two stools yielded Coxsackie B-2 virus and whose later specimens contained poliomyelitis type 2 virus, had a high antibody titer against both of these agents.

Twelve of the 14 patients were between the ages of 20 and 30, one was 34, and one 37. Ten were females, four of whom were pregnant (cases 1, 4, 5, 6; table 2); in three of these four patients antibodies against poliomyelitis viruses were absent or present only in low titer. One patient was admitted during July, three during August, six during September, and four in October. All 14 patients had fever, malaise, headache, and stiffness of the neck and back. The cerebrospinal fluid leukocyte count was above normal in all cases, but in 8 of the 14 it was under 100 cells per cubic millimeter. The clinical course in these 14 patients was similar to that observed in nonparalytic patients from whom poliomyelitis viruses were recovered. The temperature was normal within 4 or 5 days in most instances, and the patients were essentially asymptomatic within 7 to 10 days. All were completely well and had returned to their usual duties at the end of two months except for the patient in case 13, whose stools also yielded poliomyelitis virus, type 2. Slight weakness of one leg persisted for three months, but at the end of this time the patient had recovered completely and returned to work.

---

[5] Sickles, G. M.; Feorino, P., and Plager, H.: Isolation and Type Determination of Coxsackie Virus, Group B, in Tissue Culture, Proc. Soc. Exper. Biol. & Med. 88:22 (Jan.) 1955.

[6] Salk, J. E.; Youngner, J. S., and Ward, E. N.: Use of Color Change of Phenol Red as the Indicator in Titrating Poliomyelitis Virus or Its Antibody in a Tissue-Culture System, Am. J. Hyg. 60:214 (Sept.) 1954.

COMMENT

The most striking feature of the present study was the recovery of viruses other than poliomyelitis from 27.4% of patients whose stool specimens yielded cytopathogenic agents. Primary isolation was made with tissue culture (monkey kidney), and neutralization tests revealed that these agents were Coxsackie group B viruses. Prior to the advent of trypsinized monolayer tissue cultures Coxsackie viruses were rarely isolated by the tissue culture technique, and agents not neutralized by poliomyelitis antiserums have been commonly referred to as "orphan" viruses. It is apparent from the present study that, with techniques currently available, appropriate tests to exclude Coxsackie viruses must be performed before designating an unknown agent an "orphan" virus.

In contrast to the rapid, complete cytolysis caused by poliomyelitis viruses, growth of the Coxsackie strains was characterized by slow, patchy degeneration of the monkey kidney cells. These differences in cytopathogenicity were so clear-cut that it was possible to recognize the agents that were not poliomyelitis before serologic identification was attempted. The suitability of monkey kidney tissue for the primary isolation of most or all Coxsackie group B viruses remains to be determined. Sickles and others [5] found cytopathogenicity to be uniformly good, although the number of strains tested was small. HeLa cells cultures, on the other hand, seem to have definite limitations in this respect in that B-2 and B-4 strains are propagated very poorly. In one laboratory utilizing HeLa cells a number of B-1 and B-3 strains have been recovered, but there have been no isolations of B-2 or B-4 strains.[7] Hummeler, on the other hand, obtained primary isolations of B-2 virus in HeLa cells from 2 of 11 patients in an epidemic in a mental institution.[3b]

Ubiquity of the Coxsackie viruses has made it difficult to prove that these agents actually cause infections of the central nervous system. This etiological relationship has now been fairly well established by recovery of Coxsackie group B viruses from the spinal fluid of a number of patients with aseptic meningitis.[3] No attempts to isolate virus from the spinal fluid were made in the present study, but suggestive evidence was contributed by serologic studies. Neutralization tests with acute and convalescent serums indicated clearly that the patients were infected with Coxsackie B-2 (13 cases) or B-4 (1 case) virus. Neutralization tests were also carried out with poliomyelitis viruses, and in five cases the results provided definite evidence that there had not been a recent infection with poliomyelitis viruses. In the other nine cases the results were inconclusive in this regard.

The 13 patients whose stools yielded Coxsackie B-2 virus entered the hospital from widely scattered parts of the Seattle area. Isolation of this virus from fecal specimens, which were usually obtained a few days after admission, raises the possibility that the Coxsackie infections were acquired in the hospital in patients with aseptic meningitis due to some other cause. While this possibility cannot be definitely excluded from the data obtained, it seems unlikely in our opinion in view of the relative dates of admission to the hospital, the nature of the illness, and the failure to establish any other etiological diagnosis. Studies of hospital personnel, other patients, and family contacts, which would be necessary to settle the point, were not carried out. Clinically, the picture was that of aseptic meningitis and was indistinguishable from that of the nonparalytic patients whose fecal specimens yielded poliomyelitis viruses.

TABLE 2.—*Results of Serologic Studies on Acute and Convalescent Serums of Fourteen Patients Whose Fecal Specimens Yielded Coxsackie Viruses*

						Against Coxsackie Viruses				Against Poliomyelitis Viruses					
						B-2		B-4		Type 1		Type 2		Type 3	
Case No.	Age	Sex	Date Admitted	Spinal Fluid Leukocyte Count	Coxsackie Virus Isolated from Stool	Acute	Convalescent	Acute	Convalescent	Acute	Convalescent	Acute	Convalescent	Acute	Convalescent
1	25	F	8/21	74	B-2	<10	320	..*	..	<4	<4	<4	<4	16	12
2	27	M	9/25	49	B-2	160	320	..	..	<4	<4	<4	<4	<4	<4
3	29	F	9/28	21	B-2	>640	640	..	..	<4	<4	<4	<4	<4	<4
4	22	F	10/11	110	B-2	10	160	..	..	16	8	<4	<4	<4	<4
5	26	F	10/14	42	B-2	80	640	..	..	<4	<4	<4	<4	<4	<4
6	24	F	7/30	219	B-2	10	80	..	..	64	40	>1024	>1024	6	6
7	37	F	8/11	68	B-2	40	160	..	..	8	<4	64	160	640	640
8	26	M	8/23	220	B-2	10	320	..	.	<4	<4	256	640	12	16
9	34	F	9/2	13	B-2	40	160	..	..	640	256	16	12	<4	<4
10	20	F	9/10	24	B-2	40	640	..	.	12	40	40	16	160	160
11	29	M	9/16	410	B-2	80	160	..	..	160	256	4	256	16	16
12	29	F	10/8	77	B-2	80	640	..	..	8	16	>1024	>1024	64	40
13	25	M	9/22	266	B-2†	>640	640	..	..	4	<4	64	256	<4	<4
14	20	F	10/3	31	B-4	<10	<10	10	320	<4	<4	<4	<4	140	140

* Means not tested. † Poliomyelitis virus, type 2, isolated in later specimens.

SUMMARY

Of 66 adults admitted to King County Hospital during the summer and fall of 1954 with a clinical diagnosis of poliomyelitis, cytopathogenic agents were isolated by tissue culture (monkey kidney) from fecal specimens of 51. In 14 (27.4%) of these 51 patients, the agents isolated were not neutralized by poliomyelitis antiserums. Further study revealed that 13 of the 14 unidentified agents were Coxsackie group B viruses, type 2, and that the other was a Coxsackie B-4 strain. Neutralization tests performed on acute and convalescent serums gave clear-cut evidence of infection with the Coxsackie viruses isolated from the stools. In five of the patients, poliomyelitis antibodies were absent or present only in low titer both during and after the infection. In the other nine patients, definite conclusions could not be drawn as to

---

7. Syverton, J. T.: Personal communication to the authors.

whether the patient had had a recent infection with poliomyelitis viruses. The 14 patients infected with Coxsackie viruses ranged in age from 20 to 37 years. Ten were women, of whom four were pregnant. In addition to fever and stiff neck all had pleocytosis, but in 8 of the 14 the cerebrospinal fluid leukocyte count was below 100 per cubic millimeter. The clinical illness was that of aseptic meningitis and was indistinguishable from that observed in patients with nonparalytic cases from whom poliomyelitis viruses were recovered.

MANAGEMENT OF PURULENT MENINGITIS

James N. Etteldorf, M.D., Memphis, Tenn.

With the advent of chemotherapeutic and antibiotic agents, there has been a great decrease in mortality and morbidity resulting from infections involving the meninges. With early diagnosis and treatment, it has become possible to cure almost all patients with the more commonly occurring types of purulent meningitis; nevertheless, there continues to be a significant number of deaths attributed to this condition. Furthermore, in those who survive the ravages of this disease, a good number are left with all types of complications, many of which are serious and handicapping. Dr. Hattie Alexander[1] has attributed the failures in management of meningitis to the following causes: (1) failure to establish an early clinical diagnosis; (2) inadequate laboratory facilities for accurate and rapid identification of the etiological agent; and (3) lack of necessary discrimination in the selection and use of therapeutic agents.

The current practice of many physicians of administering chemotherapeutic and antibiotic agents singly, or in combination, early during the course of infections in which fever is a symptom has probably reduced the incidence of meningitis. However, such practice has caused an increase in those who survive with central nervous system damage. This has been attributed to inadequate therapy due to failure to select the optimal agent or failure to administer adequate dosages of the antibacterial agents for a sufficient period of time. This failure to select the proper agent, or to administer adequate dosages, may result in an undesirable outcome because the infection has not been completely obliterated and/or because a resistant strain of the infecting organism may have emerged, the more sensitive strains having been destroyed. The following discussion will outline the important diagnostic features and give a course of treatment for pediatric patients that is followed at our hospital. This treatment, which includes the management of certain complications, represents the modern trend and in our experience, as elsewhere, has given good results.

DIAGNOSIS

It is only by having a high index of suspicion of the presence of meningitis that the early diagnosis is made; therefore, great familiarity with the significant historical features, as well as the signs and symptoms, of this disease is imperative in order that the diagnosis may be established. Familiarity with these features will prompt the physician to perform a diagnostic spinal puncture when indicated. It should be emphasized that, during the neonatal period and in severely ill and debilitated infants, many of the clinical manifestations of meningitis may be lacking. Therefore, if the cause of the fever cannot be determined and if the general condition of the patient is out of proportion to the physical findings, one should look to the central nervous system for the source of trouble and perform a spinal puncture.

Signs and Symptoms.—The following signs and symptoms are among the most important: fever, anorexia, headache, vomiting, periods of increased irritability, drowsiness, high-pitched (cephalic) cry, fixed gaze, irregularity in rate and amplitude of respiration, convulsions, petechial rash (especially in meningococcic meningitis), bulging fontanel (unless infant is dehydrated), nuchal rigidity, presence of Kernig's sign, presence of Brudzinski's sign, hyperactive reflexes, strabismus, opisthotonos, coma, and paralysis.

Cerebrospinal Fluid.—The single most important diagnostic feature of this disease is the discovery of an abnormal cerebrospinal fluid. The spinal puncture must be carried out with care, and one should check for signs of increased intracranial pressure, such as bradycardia, hypertension, or papilledema, before carrying out the procedure. If signs of increased intracranial pressure are present, only a few drops of fluid should be withdrawn through a 22 gauge needle. Papilledema suggests long-standing increased intracranial pressure and may contraindicate a spinal puncture without a neurosurgical consultation. The danger lies in the possibility of herniation of the brain stem into the foramen magnum when the pressure of the spinal fluid is reduced by withdrawal of fluid.

Once the fluid is obtained, cultures should be made using the following mediums and sensitivity tests requested. 1. Chick embryo, if available, is probably the most efficient medium. 2. Brain broth in our experience has been very reliable, and cultures may be planted by permitting fluid to drop into the tube from the lumbar puncture needle. 3. Blood agar or broth should be used. 4. Dubos' or Lowenstein's medium should be used if tuberculosis is present and Sabouraud's if yeast or fungi are suspected. 5. If penicillin or sulfonamide drugs have been administered, penicillinase and *p*-aminobenzoic acid should be added to the mediums. Total and differ-

---

Professor of Pediatrics, College of Medicine, University of Tennessee, Consultant and Attending Pediatrician at the John Gaston Hospital and the Le Bonheur Children's Hospital.

Read before the Eighth Clinical Meeting of the American Medical Association, Miami, Fla., Dec. 1, 1954.

[1] Alexander, H. E.: Advances in the Treatment of Bacterial Meningitis, in Advances in Pediatrics, vol. 5, Levine, S. Z., and others, editors, Chicago, Year Book Publishers, Inc., 1952; Guides to Optimal Therapy in Bacterial Meningitis, J. A. M. A. 152: 662 (June 20) 1953.

ential cerebrospinal fluid cell count with and without the addition of acetic acid is valuable in the differential diagnosis.

The following procedures will assist in an early identification of the etiological organism: Gram's stain; Ziehl-Neelsen's (acid-fast) stain, if tuberculous meningitis is suspected; and capsular swelling of bacteria (Neufeld's reaction) in sediment when specific antiserum is added (especially useful in identifying Hemophilus influenzae type B). Table 1 lists the more frequent, as well as some of the less common, bacteria that cause meningitis, with their staining properties and morphological characteristics. The protein level is usually elevated above 40 mg. per 100 cc. The test for sugar shows a decrease in proportion to the increase in cerebrospinal fluid cell count except for tuberculosis, which causes moderate pleocytosis.

Other Diagnostic Studies. — Additional diagnostic studies should include blood cultures with sensitivity studies; culture and stain fluid obtained from skin lesions, if petechiae or ecchymoses are present; nasopharyngeal cultures; blood cell counts; tuberculin skin test; pellicle formation of cerebrospinal fluid with acid-fast stain (the tubercle bacilli when present are concentrated in the pellicle); and India ink preparation of cerebrospinal fluid sediment for Cryptococcus neoformans, a rare cause of meningitis.

TABLE 1.—*Bacteria That Cause Meningitis*

	Staining Properties	Morphological Characteristics
Hemophilus influenzae	Gram negative	Pleomorphic rods
Meningococcus	Gram negative	Intracellular and extracellular cocci in pairs or tetrads
Pneumococcus	Gram positive	Cocci in pairs
Streptococcus	Gram positive	Cocci in chains
Micrococcus	Gram positive	Cocci in clusters
Escherichia coli	Gram negative	Rods
Pseudomonas aeruginosa (pyocyaneus)	Gram negative	Rods
Proteus	Gram negative	Rods
Salmonella Typhoid Paratyphoid A & B	Gram negative	Rods
Klebsiella pneumoniae	Gram negative	Rods
Mycobacterium tuberculosis	Acid-fast Gram positive	Rods

TREATMENT

The treatment of meningitis is divided into the following categories: supportive, antibacterial, and management of complications.

Supportive Treatment.—The patient should have bed rest and hospitalization for adequate nursing care. To control fever, aspirin should be given (1 grain [60 mg.] per year of age every four hours) for temperatures of 101 F or above; not more than 5 grains (0.32 gm.) should be given to patients under 10 years of age. A sponge bath should be given for temperature in excess of 103 F. Sedation is required for convulsions and restlessness (0.5 to 1 grain [30 to 60 mg.] of phenobarbital sodium given intramuscularly or 0.5 to 2 grains [30 to 120 mg.] of amytal sodium given intramuscularly or intravenously). Fluid therapy is usually required during the first 48 hours or longer in the following amounts: 60 cc. of 5 or 10% glucose in water per kilogram per 24 hours as slow intravenous drip; 30 cc. of M/6 sodium lactate solution per kilogram per 24 hours subcutaneously or intravenously to assure an alkaline urine when sulfonamide drugs are being used (if vomiting is absent, 5 cc. of molar sodium lactate solution per kilogram per 24 hours orally with orange juice may be substituted for parenterally administered sodium lactate); Ringer's solution by clysis as indicated in table 2; and blood or plasma (20 cc. per kilogram) in many serious and overwhelming infections in order to supply red blood cells for oxygen transport, for energy, and for passive transfer of antibodies. The use of oxygen is helpful in minimizing cerebral damage due to anoxia.

The quantity of Ringer's solution is based on the normal 24 hour requirements of salt and may be increased if the salt requirements are increased because of vomiting or adrenal failure. The Ringer's solution and 5% glucose solution may be mixed together and given either subcutaneously or intravenously. If continuous parenteral administration of fluid is required beyond two days because of vomiting, potassium chloride should be administered as indicated in table 2 and may be added in four divided doses at six hour intervals to fluid that is being administered parenterally.

Antibacterial Treatment.—The sulfonamide drugs, through their bacteriostatic action, along with penicillin, a bactericidal agent, and the new broad spectrum antibiotics, with their bacteriostatic and bactericidal actions, have made it possible to cure almost all cases of acute purulent meningitis. At least three, and sometimes four, drugs may be given simultaneously. Such combinations afford bactericidal action and reduce the likelihood of emergence of resistant strains, assuring maximal benefit to the patient. Because of the rapid development of resistant strains and the availability of new agents, use of streptomycin has been abandoned in the early treatment.

TABLE 2.—*Administration of Fluid Therapy with Ringer's Solution and Potassium Chloride*

Age	Ringer's Solution, Cc./24 Hr.	Potassium Chloride, Gm./24 Hr.
6 mo. or less	60	0.5 (7 mEq.)
6 mo. to 2 yr.	125	1.0 (14 mEq.)
2 yr. to 6 yr.	250	1 to 2 (14-27 mEq.)
6 yr. to 15 yr.	300 to 500	1 to 2 (14-27 mEq.)

Table 3 reveals the important antibacterial agents that, according to Alexander,[1] may be used either singly or in combination against the usual etiological bacteria. For the most part we agree with Alexander; however, our unpublished observations, given in parentheses, indicate instances of disagreement, except for erythromycin, which was not included by Alexander. This table shows that broad coverage is attained when a combination of sulfadiazine, penicillin, and chloramphenicol is administered. Therefore, it is our policy to administer them as outlined in table 4 by the routes designated as soon as it has been determined that the patient has acute purulent meningitis, that is, after the necessary cultures have been taken but before the etiological agent may have been identified.

If the etiological agent cannot be detected, the above treatment is continued, except that administration of aqueous procaine penicillin, 500,000 to 1,000,000 units daily, is substituted for potassium or sodium penicillin after the patient has demonstrated clinical improvement. If the etiological organisms can be positively identified on the initial studies, or later by cultures, therapy is adjusted as follows, modified by findings of sensitivity tests, and continued for a minimum of 10 days or two weeks with an afebrile period of at least 5 days and normal spinal fluid with negative cultures.

Meningococcic Meningitis: For treatment of meningococcic meningitis, administration of sulfadiazine continues to be the single most effective drug and should be continued, maintaining blood levels of 10 mg. per 100 cc. This may be accomplished by a 50% reduction in the dose given in table 4. Administration of aqueous procaine penicillin, 300,000 to 500,000 units intramuscularly once daily, may be substituted. Administration of chloramphenicol (Chloromycetin) should be discontinued.

Hemophilus Influenzae Meningitis: For treatment of Hemophilus influenzae meningitis, administration of sulfadiazine subcutaneously should be continued until tolerated orally, maintaining a blood level of 15 mg. per 100 cc. Therapy with chloramphenicol, which is the most effective single agent, should be continued. Penicillin therapy should be stopped unless unusual sensitivity is reported by the laboratory. If necessary because of undesirable effects of the above or if great sensitivity is demonstrated, the following tetracycline derivatives may be given: tetracycline (Achromycin) or oxytetracycline (Terramycin)—40 to 50 mg. per kilogram per 24 hours orally administered; 20 mg. per kilogram per 24 hours intramuscularly or intravenously administered. Immune rabbit serum should be rarely used.

TABLE 3.—*Agents Effective in Treatment of Pyogenic Meningitis* [*]

Organism	Sulfadiazine	Penicillin	Streptomycin	Chloramphenicol	Tetracycline	Polymyxin	Erythromycin [‡]
Hemophilus influenzae	+[†]	0	+	+	+	+	..
Meningococcus	+	+	+ (±-0)	+	+	—	..
Pneumococcus	+	+	+ (±-0)	+	+	—	(+)
Streptococcus	+	+	+ (+-0)	+	+	—	(+)
Micrococcus	± (+-0)	+ (+-0)	+ (±-0)	+	+	—	(+)
Escherichia coli	+	0	+	+	+	+	..
Pseudomonas aeruginosa	0	0	+ (±)	±	±	+	..
Salmonella	± (0)	0	+ (0)	+	+	+ (0)	..
Klebsiella pneumoniae	+ (±)	0	+	+	+	+	..
Proteus	+ (±)	0	+ (±)	0	0	—	..

[*] Modified from Dr. H E. Alexander [1] Our unreported observations, which differ in some respect from those of Dr. Alexander, are given in parentheses.
[†] +, effective agent; 0, no significant action; —, insufficient data; ±, limited efficacy.
[‡] Not included by Alexander

Pneumococcic Meningitis: For treatment of pneumococcic meningitis, sulfadiazine therapy should be continued in dosages to achieve blood levels of 15 mg. per 100 cc. Penicillin dosage should be increased to 1,000,000 units every two or three hours; 10,000 to 25,000 units of penicillin daily in 10 cc. of isotonic sodium chloride solution may be given intrathecally for one to three days. (This procedure is highly controversial and is not a routine in our hospital.) Chloramphenicol therapy might be continued until definite clinical improvement has occurred, as Deane and co-workers [2] have observed that it renders the spinal fluid sterile in three days. When tetracycline derivatives are administered in conjunction with penicillin, a higher mortality has been reported than when the broad spectrum antibiotics are not included.[3]

Micrococcic and Streptococcic Meningitis: For treatment of micrococcic and streptococcic meningitis, penicillin therapy should be continued and the dosage increased to 1,000,000 units intramuscularly every three hours. This large dose is recommended because of the apparent increase in penicillin-resistant Micrococcus organisms that Welch [4] has observed in 12.5% of outpatients and in as many as 68% of a hospitalized population. Treatment by administration of penicillin, 10,000 units intrathecally for three days, is controversial. Sulfadiazine therapy should be continued and blood levels of 15 mg. per 100 cc. maintained. Erythromycin is an effective and dependable antibiotic against these organisms when given in doses of 8 to 10 mg. per kilogram every six hours orally or intravenously. This constitutes a large dose and is used with the hope of preventing emergence of resistant strains of Micrococcus. Tetracycline derivatives, administered orally, intramuscularly, or intravenously, should be used as in H. influenzae. After sensitivity tests have been made, chloramphenicol may be used as in H. influenzae, if the clinical course of the disease justifies its use.

Escherichia Coli Meningitis: For treatment of Escherichia coli meningitis, continue sulfadiazine therapy with blood level of 15 mg. per 100 cc.; discontinue penicillin therapy; and continue chloramphenicol therapy. Streptomycin should be given in doses of 40 mg. per kilogram per 24 hours intramuscularly and 75 mg. intrathecally daily. If the patient is sensitive, administer tetracycline derivatives as in H. influenzae. Polymyxin B should be given in doses of 5 mg. per kilogram per day in four divided doses and 5 mg. intrathecally daily for one to three days.

Meningitis Caused by Pseudomonas Aeruginosa and Proteus Organisms: Meningitis caused by Pseudomonas aeruginosa and Proteus organisms is especially resistant to treatment. Continuation of sulfadiazine therapy aids in preventing the emergence of resistant strains of Proteus. Penicillin therapy should be discontinued. Chloramphenicol therapy may be of value after sensitivity tests have been made. Polymyxin B should be used as for Esch. coli. Neomycin therapy, 400 units per kilogram intramuscularly every four hours, was used in one reported case with cure by Ditkowsky and co-workers.[5] Tetracycline derivatives usually are ineffective.

---

[2] Deane, G. E.; Furman, J. E.; Bentz, A. R., and Woodward, T. E.: Treatment of Meningitis with Chloromycetin Palmitate R: Results of Therapy in 23 Cases, Pediatrics **11**: 368, 1953.

[3] Ahern, J. J., and Kirby, W. M. M.: Lack of Interference of Aureomycin with Penicillin in Treatment of Pneumococcic Pneumonia, A. M. A. Arch. Int. Med. **91**: 197 (Feb.) 1953.

[4] Welch, H.: The Antibiotic-Resistant Staphylococci, editorial, Antibiotics & Chemother. **3**: 561, 1953.

Tuberculous Meningitis: A combination of streptomycin or isoniazid with *p*-aminosalicylic acid and at times a combination of all three agents has been used in our hospital for treatment of tuberculous meningitis and represents a modification of the Public Health Cooperative Study.[6] Streptomycin, 40 mg. per kilogram per 24 hours intramuscularly, should be given for six months or longer until the cerebrospinal fluid sugar value is normal for one week and cultures are negative. Although it is our practice to give streptomycin intrathecally, there is a trend away from this practice in many centers. Isoniazid, 8 mg. per kilogram per 24 hours orally, should be given for 6 to 12 months.[7] *p*-Aminosalicylic acid, 0.2 gm. per kilogram per 24 hours, should be given for six months to one year. Tuberculin administered intrathecally as recommended by Cairns and co-workers [8] has been unsuccessful in our hands, although they report dramatic results when it is used along with streptomycin. Use of corticotropin with antimicrobial therapy is now in the experimental stages.[9]

MANAGEMENT OF COMPLICATIONS

Subdural Effusion.—Subdural effusion occurs more frequently than is generally realized and has been reported to be present in as high as 47% [10] of the cases of purulent meningitis. The pathogenesis of these subdural collections of fluid is not completely clear. It is thought that there is damage to cerebral cells secondary to arteritis and thrombosis associated with the inflammatory process. The destroyed brain tissue and the accumulation of other inflammatory products, along with an increase in vascular permeability (arteritis), results in subdural accumulation of fluid that is high in protein. Due to the osmotic pressure of the fluid, the size of the area increases as more fluid enters and, as a result, pressure symptoms make their appearance. Furthermore, a thick inflammatory membrane may form, which in itself produces pressure.

The high incidence of this complication has made bilateral subdural taps a routine procedure in certain hospitals. It is our opinion, however, that subdural taps should be omitted in those cases in which patients are making an uncomplicated recovery and are indicated when one or more of the following signs are observed: (1) persistence of fever beyond three to five days; (2) recurrence of fever after a period of normal temperature; (3) continued increase in intracranial pressure as evidenced by a tense fontanel, enlarging head, vomiting, and convulsions; (4) focal neurological signs; and (5) any indication of unsatisfactory convalescence. Subdural taps through the fontanel or through burr holes in older children, withdrawing not more than 25 to 30 cc. at a time, should be performed at daily intervals until the formation of fluid decreases appreciably, and then at two or three day intervals. In those cases in which there is an unusual persistence of fluid beyond 10 days, surgical removal of the membrane is recommended. It is important to culture the subdural fluid and continue the administration of antibacterial agents until the infection has been eradicated.

Waterhouse-Friderichsen Syndrome.—Waterhouse-Friderichsen syndrome, a serious complication, occurs more frequently in meningococcic and hemolytic streptococcic meningitis than in the other forms. The syndrome is brought about by acute adrenal failure secondary to hemorrhage and necrosis of the glands. It is characterized by the sudden onset of shock, prostration, and cyanosis. The pulse is fast and feeble, and the blood pressure is low. The skin is cold and clammy with petechiae and ecchymotic areas. Heroic therapeutic measures are required and include prompt intravenous administration of 1,000,000 units of aqueous penicillin and 0.15 gm. per kilogram of sulfadiazine sodium, to be followed by the schedule as outlined above. It is essential that adequate 10% glucose in water and at least twice the recommended quantity of Ringer's solution be given intravenously. Blood transfusions are imperative in the management of this syndrome. In addition, 50 to 100 mg. of hydrocortisone should be given intravenously,[11] followed by a similar dose intramuscularly every two hours for two or three doses and then 100 mg. once or twice daily for three to five days, depending on clinical course. Hydrocortisone should be withdrawn gradually over a period of five to seven days. Arterenol (nor-epinephrine), 4 cc. of 1:1,000 solution in 1,000 cc.

TABLE 4.—*Administration of Agents Effective in Treatment of Purulent Meningitis*

Drug	Dosage and Administration
Sulfadiazine sodium as a 5% solution	3 cc./kg. (0.15 gm./kg.) immediately subcutaneously, then 6 cc./kg. (0.30 gm./kg.) in 4 doses per 24 hr.
Sulfadiazine	Similar dosage when tolerated orally
Penicillin, sodium or potassium	500,000 units I.M. immediately and every 3 hr.
Chloramphenicol	40 mg./kg. I.M. or I.V. immediately 50 mg./kg. orally immediately 50 mg./kg. I.M. or I.V. daily, 4 divided doses 100 mg./kg. orally daily

---

5. Ditkowsky, S.; Goldman, A., and Goldin, M.: Pseudomonas Meningitis in an Infant Successfully Treated with Neomycin, Pediatrics **9**: 101, 1952.

6. Chemotherapy of Military Tuberculosis and Tuberculous Meningitis: A Public Health Service Cooperative Investigation, Pediatrics **12**: 38, 1953.

7. Ratner, B.; Grunberg, E., and Burke, J. C.: Hydrazine Derivatives of Isonicotinic Acid, symposium, Pediatrics **11**: 82, 1953.

8. Cairns, H.; Smith, H. V., and Vollum, R. L.: Tuberculous Meningitis, J. A. M. A. **144**: 92 (Sept. 9) 1950.

9. Bulkeley, W. C. M.: Tuberculous Meningitis Treated with A. C. T. H. and Isoniazid: Comparison with Intrathecal Streptomycin, Brit. M. J. **2**: 1127, 1953. Shane, S. J., and Riley, C.: Tuberculous Meningitis: Combined Therapy with Cortisone and Antimicrobial Agents, New England J. Med. **249**: 829, 1953.

10. Smith, M. H. D.; Dormont, R. E., and Prather, G. W.: Subdural Effusions Complicating Bacterial Meningitis, Pediatrics **7**: 34, 1951.

11. Hodes, H. L.; Moloshok, R. E., and Markowitz, M.: Fulminating Meningococcemia Treated with Cortisone: Use of Blood Eosinophil Count as a Guide to Prognosis and Treatment, Pediatrics **10**: 138, 1952. Griffin, J. W., and Daeschner, C. W.: Meningococcal Infections: With Particular Reference to Fulminating Meningococcemia (Waterhouse-Friderichsen Syndrome) Treated with Cortisone and Norepinephrine, J. Pediat. **45**: 264, 1954.

of saline given intravenously for approximately 24 hours at a rate sufficient to maintain a satisfactory response, has proved valuable in combating peripheral circulatory collapse.

Other Complications.—Other complications such as convulsive disorders, emotional disturbances, behavior problems, and mental deficiency, which may follow, especially in serious cases, should be treated as they occur.

CONCLUSIONS

If the diagnosis of meningitis is established early and followed promptly by an intense and adequate therapeutic and supportive treatment, the mortality and undesirable sequelae from this disease will be minimized. Early recognition of the complications followed by energetic treatment also has an important place in the management of this disease.

848 Adams St. (5).

HYPNOTISM IN PREGNANCY AND LABOR

Sol T. DeLee, M.D., Chicago

The manifold phenomena of hypnosis are being intensely studied today by physicians, surgeons, dentists and clinical psychologists to build a new science from the foundation of an ancient art. With psychoanalysis and psychosomatic medicine still meeting with some resistance by the medical profession, hypnotism, quite naturally, is receiving an even more critical examination. Yet, it is in relation to these specialties that it is of the greatest therapeutic value. Hypnotism, at the present time, is also receiving considerable studied application in obstetrics. The purpose of this presentation, therefore, is to evaluate and discuss its use, advantages, and disadvantages in obstetrics in selected patients and to briefly review its history in medicine. Our knowledge of the motivations behind human behavior is still inadequate to explain all of the complexities of mental dysfunction. The lack of understanding of the phenomena of hypnosis strongly emphasizes our deficiencies in this regard. Plainly, this invites antagonism to the use of hypnosis, because it threatens our complacency concerning accepted beliefs and contributes to doubts that have relegated hypnosis to the background. Extravagant and unfounded claims by some of its ardent proponents, plus sensationalism in its application in the field of entertainment, account for further opposition.

BACKGROUND

Since its earliest use by the ancients, hypnotism has always been erroneously associated with supernatural powers. This is not surprising, as a study of its history points up its connection with the bizarre, mysterious, and unknown as they relate to the unexplored regions of the mind. From antiquity, hypnotism has played a role in religion and medicine, and the phenomena produced by medicine men, witch doctors, and priests have always been ascribed to miracles performed by the gods. In Egypt there were "sleep temples," and a papyrus more than 3,000 years old describes hypnosis much as it is used today. In Greece, the sick were treated and cured through hypnosis by religious leaders. The Hindu fakir, the South Pacific fire dancer, and the Indian yogi of today use self-induced hypnotic analgesia to make their feats possible.

The therapeutic use of hypnosis was revived late in the 18th century, when a Catholic priest, Father Gassner, obtained hundreds of "faith cures" through its methods. Franz Mesmer of Vienna, impressed by Father Gassner's results, employed the art during the early 19th century and developed a large following in the medical profession. Many authentic cures by "magnetism" were reported. Mesmer's methods, however, as well as those of his followers, overlooked the role of suggestion in alleviating disease and suffering. Unfortunately too, his methods were spectacular and frequently bordered on charlatanism. The latter stigma, along with the inexplicable phenomena, eventually alienated his colleagues, and Mesmer ultimately was ostracized by the medical profession, a fate subsequently known to many men who pursued their interest in this field. James Braid, a Scotch physician, merits the title of "father of modern hypnotism," although Liebeault, a 19th century French physician, is often given the credit. Liebeault coined the terms hypnotism and hypnosis and wrote many papers, as well as an authoritative book on the subject. Liebeault founded the Nancy school and developed the theory that suggestion was the key to hypnosis. The first surgical operations using hypnosis were performed by Recamier in 1821. Cloquet reported his use of hypnotic anesthesia in surgery to the French Academy of Medicine in 1829. In America at about the same time, Wheeler did a nasal polypectomy employing hypnosis, its first such use in this country.

The new science grew, and, in 1840, James Esdaile, an English surgeon practicing in India, reported thousands of operations using hypnosis; more than 300 of these involving major surgical procedures, such as limb amputations. His book describing these operations is a library treasure today. Since then, particularly in the last two decades, numerous authoritative articles have appeared in the scientific literature, describing the anesthetic applications of hypnosis in obstetric and surgical procedures. Although slowly accepted, hypnotism emerged as a science around 1890, when Bernheim, a French physician, perfected techniques that are still used for induction of hypnosis. He, like Liebeault, recognized that suggestion was the basis for hypnosis, and his unimpeachable reputation added to the growth of the science. This form of therapy began to come into its own, and many recognized scientists, including Charcot,

---

Assistant Clinical Professor, Obstetrics and Gynecology, University of Illinois Medical School, and Attending Physician, Chicago Maternity Center.

Freud, Pavlov, Babinski, and Janet, accepted its validity. In America, Phineas Quimby, a leading practitioner, became historically famous by treating Mary Baker Eddy for a neurotic condition. She was enthusiastic about his methods but denied that hypnosis had played a role in the results. Shortly thereafter, she evolved her own theory of healing, known today as Christian Science. For a complete history of Christian Science and its relation to hypnosis, the reader is referred to Bromberg.[1]

Hypnotism currently interests many psychiatrists, anesthesiologists, obstetricians, gynecologists, and dentists. Today's literature is filled with impartial investigations of hypnotherapy for psychosomatic conditions. The recent war demonstrated the value of hypnoanalysis in combat fatigue and other war neuroses. Its success has helped considerably in reducing the disdain, fear, and apprehension that formerly plagued this valuable entity. No longer shrouded in mysticism, it has emerged as an established aid to depth psychology. Hypnotism (from the Greek "hypnos" meaning sleep) is a method of inducing relaxation, during which susceptibility to suggestion is increased. An all-inclusive definition of suggestion describes it as an idea that the person accepts uncritically, which thereby enables him to initiate appropriate behavior. The degree of suggestibility to hypnosis depends on the depth of the various stages. Some authorities describe as many as nine stages; others five or six. Three arbitrary hypnotic stages, however, which frequently overlap, are generally recognized; namely, light, medium, and deep. These are equivalent to the lethargic, cataleptic, and somnambulistic stages. They do not include a condition of a slight degree of suggestibility, which is termed hypnoidal, wherein relaxation and drowsiness are present.

For practical purposes, only the light and deep stages will be considered here, although it must be emphasized that this is most inadequate for experimental or scientific investigation. The light stage is characterized by eye and limb catalepsy, lassitude, and heeding of simple posthypnotic suggestions, as well as partial analgesia and anesthesia. During deep somnambulism, there is marked responsiveness to posthypnotic suggestions, complete analgesia, anesthesia, and posthypnotic amnesia. Although analgesia means the absence of sensibility to pain and anesthesia the loss of sensory perception, this author, as well as those herein referred to, use the term anesthesia more broadly to include also the absence of pain sensitivity. In somnambulism too, one can produce recall of memory and age regression, as well as both positive and negative sensory hallucinations. The foregoing phenomena are the only ones of significance in our present study. Many others, important to the clinical psychologist and psychiatrist, are omitted. Individual reactions vary greatly. The objective symptoms of the deep hypnotic state may be evidenced in a person in a medium or light trance, and symptoms of the light stage can occur or may be absent in a person deeply hypnotized.

ADVANTAGES

The late J. B. DeLee[2] recognized early that profound relaxation during delivery in some patients could best be obtained by hypnosis. He wrote, "The only anesthetic without danger is hypnotism. . . . I am irked when I see my colleagues neglect to avail themselves of this harmless and potent remedy." The advantages of hypnotism in obstetrics are many and may be enumerated as follows: 1. Because the patient is treated in an unusual and special manner and because suggestibility is present, she is likely to have a more pleasant pregnancy, free from the ordinary discomforts associated with this condition, such as nausea, pressure, and cramps. 2. Fear, pain, and apprehension before and after labor are eliminated. 3. It is possible to allow the mother to experience the sensations of childbirth without attendant pain. 4. Uterine contractions often can be either accelerated or retarded by suggestion. 5. Blood loss is considerably reduced owing to vasoconstriction of the capillaries. 6. Elimination of pain decreases shock and facilitates recovery. 7. The responsive patient cooperates more fully, this being particularly valuable during the expulsive stage. 8. There are no undesirable postoperative effects from hypnosis as with most other anesthetics. 9. In premature deliveries hypnosis is of especial advantage because it reduces fetal anoxia. 10. Hypnosis raises resistance to fatigue by about 20%, minimizing maternal exhaustion. 11. Hypnosis is indicated in persons who are allergic to anesthetic agents. 12. Chemical anesthesia, especially ether, depresses uterine activity and interferes with the normal mechanism of labor; this is not so with hypnoanesthesia. 13. The first stage of labor can be reduced. According to a controlled series by Abramson and Heron[3] the first stage of labor was reduced by two hours; in a controlled series by Michael,[4] the first stage of labor was reduced by approximately four hours in primiparas and by about 15 minutes in multiparas. Michael further points out that the second stage of labor in his series was reduced by one hour in primiparas; in multiparas the time was only insignificantly different.

DISADVANTAGES AND DANGERS

Many physicians familiar with the potentialities of hypnosis are enthusiastic about its results in selected patients. Previous publications[5] note that its use in obstetrics can be most effective despite certain objections and limitations. It has been estimated that as high as 90% of normal persons can be hypnotized to some degree. Success depends largely on the skill of the operator and the inherent susceptibility of the patient. In spite of the high percentage of susceptible persons, surgical anesthesia can be induced in only about one out of four patients, and even in these it may not be complete. This limitation, of course, is a valid objection to its use as an anesthetic agent. The time necessary to achieve rapport and a satisfactory trance depth suitable for surgery is another disadvantage. In parturition, with the patient's knowledge and permission, a trained hypnotherapist should be available throughout the entire labor, unless autohypnosis has been induced through posthypnotic suggestion. The presence of the operator for a prolonged period makes an additional expense for the patient. This objection will be largely eliminated as hypnoanesthesia grows in use and more trained personnel are available.

---

[1] Bromberg, W.: Man Above Humanity: A History of Psychotherapy, Philadelphia, J. B. Lippincott Company, 1954.

[2] DeLee, J. B., and Greenhill, J. P.: Year Book of Obstetrics and Gynecology, Chicago, Year Book Publishers, Inc., 1938, pp. 142-144.

[3] Abramson, M., and Heron, W. T.: An Objective Evaluation of Hypnosis in Obstetrics: Preliminary Report, Am. J. Obst. & Gynec. 59: 1069-1074 (May) 1950.

[4] Michael, A. M.: Hypnosis in Childbirth, Brit. M. J. 1: 734-737 (April 5) 1952.

[5] Kroger, W. S., and DeLee, S. T.: The Use of the Hypnoidal State as an Amnesic, Analgesic and Anesthetic Agent in Obstetrics, Am. J. Obst. & Gynec. 46: 655-661 (Nov.) 1943; The Psychosomatic Treatment of Hyperemesis Gravidarum by Hypnosis, ibid. 51: 544-552 (April) 1946.

In a deeply disturbed person, either psychotic or borderline psychotic, hypnosis is contraindicated, except by one also trained in dynamic psychiatry. There is little possibility, however, that hypnosis can precipitate a psychotic condition, but the likelihood that it might be held responsible is much greater. Psychotics are difficult, almost impossible, to hypnotize, but even if they proved susceptible, the dangers would be minimal. Such patients, of course, should not be treated by the general practitioner. Some psychiatrists and others contend that hypnosis fosters extreme dependency. For example, Jacobson[6] favors relaxation methods in labor and Read's simplified techniques but believes that psychiatric suggestion and hypnoidal states in obstetrics are unreliable—they may cloud symptoms and produce analgesia in only about 10%—and unsuitable for the average patient. Jacobson further states that hypnosis tends to increase personal dependence. This may be true, but a strong bond of dependency exists in every doctor-patient relationship, especially between obstetrician and patient. This dependency, however, is only temporary and of no permanent importance, although it can be used advantageously at the time to establish greater confidence in the obstetrician. As in psychotherapy, this dependency serves to bind the patient in treatment during the initial interviews when rapport is not too firmly established. Later, the reasons for the dependency can be worked through and dissolved.

Cultural attitudes still exist toward hypnotism that undoubtedly cause many physicians to have an unreasonable aversion to its practice and clinical application. Fear of failure influences many others in not employing it. Still others, realizing the clinical advantages of hypnosis, do not like to assume the role of hypnotherapist or operator because of fear of being stigmatized. The delicacy one must apply in dealing with hypnotism is another objection to its use in private practice and points up the fact that until its value is more fully understood and accepted, it is a method best accepted by the doctor at the patient's request. These objections can be eradicated if patients understand that the physician is only trying to teach them how to assume healthy attitudes and that there are no magic powers invested in him.

PREPARATION

When a gravida decides to have her baby under hypnosis, one must empirically determine her responsiveness. Of course, every patient is not susceptible to deep hypnosis, and the therapist must establish her potentialities before the onset of labor. Rapport is essential, this being defined as the harmonious relationship between subject and therapist. Once the subject cooperates in carrying out a suggestion, rapport is definitely established. Although no less time-consuming than preparing patients for natural childbirth, training for hypnosis is not elaborate. Patients do not have to read, exercise, or attend prenatal training classes. After inducing hypnosis several times before labor, and during each session giving posthypnotic suggestions that labor will be painless, one can easily raise the pain threshold. Repeated conditioning readily enables the patient to reach the deeper stages of hypnosis. The patient is told that she will look forward to her pregnancy and confinement with a feeling of joy and happiness, instead of dread and apprehension. The more these posthypnotic suggestions are repeated, the more effective they become. She is repeatedly told that she will promptly fall into a deep hypnotic state in response to a given command at any time. Suggestions must be made in a dignified, firm manner, and it is imperative that the gravida maintain complete confidence in her physician and/or therapist and the method at all times. After adequate preparation, she can be put into a somnambulistic state in a matter of seconds.

Response to posthypnotic suggestions and production of amnesia and anesthesia during the prenatal training period give the indication that the patient is ready for all the stages of labor. An Allis clamp or sterile needle may be used for testing the depth of anesthesia. Complete anesthesia during parturition is often accompanied by amnesia, and these are attainable by command. Amnesia for part or all of the labor and delivery can be induced or removed at the suggestion of the therapist, according to the previously expressed wishes of the patient. Ideally, conditioning should begin during the third or fourth month of pregnancy. The patient should be hypnotized two or three times a month until the stage of deep hypnosis is reached. Just how many visits a patient will require before one can feel confident of satisfactory anesthesia is uncertain; it can be 1, 20, or even more. Usually, if after 10 sessions anesthesia is not obtained, the outlook is poor. Patients must be informed in advance of the possible time element so that early discouragement is avoided. Hypnosis cannot be induced in some patients, owing either to insusceptibility or a lack of rapport between the therapist and that particular individual. There may also be an inconsistency of response from time to time in the same individual.

Many excellent hypnotic techniques are described, and several authoritative books are available on this subject.[7] Here it should be emphasized that physicians desiring instruction in hypnotism should seek it from reputable and qualified scientists, rather than from lay practitioners not conversant with its medical applications. If a trained hypnotherapist is to induce the hypnosis rather than the obstetrician himself, the patient will visit the therapist as often as is necessary until late in pregnancy, at which time, or whenever the maximum degree of hypnosis has been reached, a transference of control may be affected; that is, unless it has been prearranged between the patient and obstetrician that the therapist is to be with the patient throughout her labor. A good somnambulist, through posthypnotic suggestion, is capable of inducing self-hypnosis and by autosuggestion can eliminate the fear, tension, and pain associated with childbirth.

---

6. Jacobson, E.: Relaxation Methods in Labor: Critique of Current Techniques in Natural Childbirth, Am. J. Obst. & Gynec. **67**: 1035-1048 (May) 1954.

7. Schneck, J. M.: Hypnosis in Modern Medicine, Springfield, Ill., Charles C Thomas, Publisher, 1953. Wolberg, L. R.: Medical Hypnosis: vol. 1, the Principles of Hypnotherapy; vol. 2, the Practice of Hypnotherapy, New York, Grune & Stratton, Inc., 1948.

LABOR

When labor begins, as determined by the presence of regular contractions at intervals of five to six minutes lasting 30 seconds or more, or by the existence of a dilating cervix, regardless of the character of the contractions, the patient should be hospitalized and placed in a hypnotic state. This can be done by the physician personally, or by his speaking to her over the telephone, or by an assistant, such as a nurse, presenting her with a written order—all depending on the prenatal training and conditioning. Later, the hypnotist's presence is necessary to prolong the trance and prevent it from lapsing into natural sleep from which the patient could awaken with actual distress. Suggestions are given for complete anesthesia and usually amnesia. The patient appears to be relaxed and asleep, even during the height of labor and the delivery phase. As previously stated, it is possible for the patient to experience some of the sensations of childbirth, yet feel no discomfort. Michael [8] states that "The question of a disturbance in the normal mother-child relationship has been raised, but it is felt that this relationship, rather than being impaired, is actually enhanced, as the mother retains no unpleasant memories of the childbirth." Contractions can be felt as a tenseness of the abdomen and the bearing-down reflex as slight perineal pressure. Participation, as well as full knowledge of all occurrences, can be effected upon command, or amnesia (partial or total) can be induced. It is thus that a spontaneous or operative delivery is managed, whether the operative procedure be a major or minor one.

COMMENT

For centuries research has been unsuccessful in explaining the true mechanism of hypnosis and its associated psychological and physiological phenomena. That there is no acceptable theory of hypnosis is due to the fact that most investigators attempt to explain trance induction and its phenomena rather than the actual hypnotic state per se. It has been postulated in the literature that the hypnotic state was once used in primitive men as a defense mechanism to ward off fear or danger. Some believe that the hypnotic state in susceptible persons is, in reality, a throwback to the state of catalepsy, so commonly observed in frightened animals when they "freeze" to the landscape to escape detection. The presence of a fully developed cortex now makes such instinctual defense mechanisms unnecessary; however, this atavistic tendency is closer to the surface in good subjects than in those who are not readily hypnotizable.

Schneck,[9] likewise, in terms of its basic ingredient views the hypnotic state as that condition represented by the most primitive form of psychophysiological awareness of individual-environmental differentiation that can be obtained among living organisms. He believes that the bringing to the fore of this most primitive state and its retention to some degree exists among all biological forms. Howarth [10] agrees that "hypnosis has been present since the days when living matter originated in the primeval mud." He contends that hypnosis results whenever the organism reacts to stimuli or "input" suggestions from the environment. He believes that clinical hypnosis is a special form of suggestibility, based mainly on the ability of the higher neural centers to interpret semantic representations. Any stimulus is thus a suggestion from the environment, but whether it is acted upon depends upon a previously established sensory order or, to use a more common term, "the meaning of things." Hence, hypnosis is essentially the process of creating attitudes suitable for the acceptance of suggestion.

These theories certainly do not irrefutably answer all of the questions. Some refer to hypnosis as a form of sleep, yet the hypnotic state is not natural sleep nor is it unconsciousness. Brain waves, reflexes, galvanic skin reactions, cerebral circulation, and blood pressure readings in hypnosis are identical to the normal state and differ from true sleep in the same person. Our most sensitive investigative techniques have not produced the answers. There are many other theories as to the nature of hypnosis, and the literature is boundless on the subject. The practical question is whether or not it is useful, and if so, why not add it to our armamentarium?

There is no doubt that the anticipation of pain is an important factor in the intensity with which it is felt. Such expectation and fear can be effectively relieved with suggestions given during even light hypnosis. Common sense discussion and education can have the same effect, although these are more time-consuming and often less effective. The same arguments that favor a natural childbirth program make the use of hypnosis desirable. In fact, this author,[11] whose experience with hypnosis in obstetrics is moderately limited, concurs in the conviction of Mandy [12] and others that some successful natural childbirth patients have been hypnotized to a degree; they have reached at least a light and, in some instances, a medium trance not dissimilar to a waking hypnosis without self-awareness and usually without the knowledge of the doctor. Most patients under Read's system demonstrate at least some of these phenomena. Whether natural childbirth is by means of hypnosis or not is unimportant here. What is pertinent is the similarity of advantages and results. With education through reading, class instruction, exercises, and suggestive therapy, natural childbirth patients lose anxiety and fear and much discomfort both in pregnancy and labor. They enjoy their experiences and are very cooperative and relaxed patients. Of course, many natural childbirth patients have pain during the last part of the first stage and entire second stage but certainly less than those unprepared. Furthermore, they require less use of analgesic and anesthetic agents. The same can be said of patients who train for hypnosis. They are more cooperative and require fewer, if any drugs.

SUMMARY AND CONCLUSIONS

During the past decade, as a result of the interest of the medical profession in suggestive relaxation methods for painless childbirth, a marked increase in the scientific applications of hypnosis has become apparent. It has been a belated but welcome recognition of the usefulness of hypnoanesthesia, either as an anesthetic agent or as an adjunct to chemoanesthesia. Hypnosis in parturition is far from a panacea nor will it ever supplant chemoanesthetic agents. Nevertheless, its applications are growing daily, and it is proving a powerful ally in alleviating other functional conditions in obstetrics and gynecology; this is also true in other clinical fields. Seminars by qualified scientists to teach all aspects of clinical hypnosis are increasing rapidly, and the British Medical Association recently recommended that all physicians be grounded in the basic principles of hypnotherapy. It must be emphasized that in order to successfully employ hypnotic techniques for psychotherapy, one must be oriented or trained in psychodynamics. More active participation and education in hypnotic methodology will help dispel misunderstanding and apprehension among the laity. Thus, if judiciously employed, another valuable technique will be available to more physicians who wish to mitigate the pain of parturition.

---

[8] Michael, A. M.: Hypnosis in Childbirth, Brit. M. J. **1**:734-737 (April 5) 1952.

[9] Schneck, J.: A Theory of Hypnosis, J. Clin. & Exper. Hypnosis **1**:16-17 (July) 1953.

[10] Howarth, E.: A New Theory of Hypnosis, J. Clin. & Exper. Hypnosis **1**:42-47 (Oct.) 1953.

[11] DeLee, S. T.: Trends in Natural Childbirth, Journal-Lancet **74**:215-221 (June) 1954.

[12] Mandy, A., in discussion on Reid, D. E., and Cohen, M. E.: Evaluation of Present Day Trends in Obstetrics, J. A. M. A. **142**:615-623 (March 4) 1950.

104 S. Michigan Ave.

A NEW METHOD OF MANUAL ARTIFICIAL RESPIRATION FOR INFANTS AND SMALL CHILDREN

Capt. Harold J. Rickard (MC), U. S. N.

Present Methods of Resuscitation

It has been written, "One of the serious indictments of modern specialized medicine is the lack of knowledge of many doctors of how to perform effective artificial respiration in emergency situations. For example, is it not true that many times the doctor is embarrassed in the presence of a crowd around a drowned or electrocuted person because he realizes that he is less competent to perform a life-saving act than the Boy or Girl Scout, the policeman or the fireman who stands watching his fumbling efforts at resuscitation?" [1]

If the above quotation, written by prominent physicians, approximates the truth, and I personally have reason to believe that it does, we might properly ask what fumbling efforts at resuscitation, if any, are being made by the average lay person and why?

It is my candid opinion, based upon more than 35 years of practical experience in the resuscitation field, that the indictment is not due so much to the lack of knowledge but rather to the lack of practice and the relative infrequency of opportunities for practical application. The act of giving effective artificial respiration in emergency situations, in fact in all situations involving asphyxia, is developed in two distinct stages. The theoretical stage can be learned by lectures and informal talks on the subject. The practical stage can be obtained by experience and practice only. It cannot be taught; it must be acquired. These facts do not seem to be well understood by the general public. Hence the physician in emergency situations, in public, is more apt to gain public criticism for his honest, though possibly fumbling, efforts than the rescue squads of fire departments, police, and Boy Scouts, who devote much available time and effort in practice and most certainly have more opportunities for practical application of the art of resuscitation, both manual and mechanical, than the average physician. Regardless of whether this constitutes a valid excuse for the average physician, in the eyes of the public it still remains a fact, and the average lay person would seem to be much worse off in this respect due to his or her lack of theoretical knowledge. Consequently, any effective method or technique of a resuscitative nature should, insofar as possible, eliminate or alleviate these chances for error by the average physician and layman. The vital and effective components should be as nearly automatic as it is humanly possible to make them.

The successful and widespread use of the modern mechanical resuscitator has been mainly due to the fact that these important components are provided for in a mechanical way. Aspiration and a mechanical airway are provided not only to obtain but also to maintain an unobstructed and adequate airway. Pressures are controlled and applied by automatic cycling in a constant and rhythmic rate with minimum variation throughout the entire procedure.

Finally, the manual effort expended by the operator is negligible. At present there is practically unanimous agreement that these units are safe and effective. However, the fact remains, as has been pointed out many times in the past, that they are usually not available to the average doctor or layman when an emergency arises. On the other hand, if it were possible to utilize and duplicate several of the most important components in a manual method in which extra equipment was not necessary, the results would be not only safe and effective but also extremely adaptable to resuscitative efforts in infants and small children.

HISTORY OF ARTIFICIAL RESPIRATION

When one digests the literature dealing with the history of artificial respiration, one important thing stands out glaringly, and that is the apparent reluctance of the medical profession as a whole to take the lead in this most important subject. It is true that many members of the profession made notable contributions in this field in the past, as individuals, but it was not until within the past several years that a concerted effort was made by the entire profession. This effort was brought about primarily by the vital interest of the members of the medical profession serving in the armed forces and by association with civilian medical groups. The results of these conferences and of laboratory and clinical experimental work culminated in a proposed change from the

---

From the U. S. Naval Air Missile Test Center, Point Mugu, Calif.

The opinions and/or assertions contained herein are the private ones of the writer and are not to be construed as official or reflecting the views of the Navy Department or the naval service at large.

[1] Cullen, S. C., and Gross, E. G.: Manual of Medical Emergencies, Chicago, Year Book Publishers, Inc., 1950.

Schafer (prone pressure) method to that of the Holger Nielsen (arm lift–back pressure) method, which is a modification of the Nielsen technique used successfully for 20 years in the Scandinavian countries. The proposed change was officially approved and adopted by practically all major organizations vitally interested in this subject. This included the armed forces, the American National Red Cross, the Federal Civil Defense Administration, the Public Health Service, the Bureau of Mines, the Boy Scouts and Girl Scouts of America, the American Telephone and Telegraph Company, the Council on Physical Medicine and Rehabilitation of the American Medical Association, and others.[2]

It should be pointed out that the arm lift–back pressure method was proposed, approved, and adopted as the preferred method but that modifications and even other methods, such as the Silvester (arm lift–chest pressure) method, may at times and in certain complicated cases have to be utilized. These situations could occur in cases of injury and advanced pregnancies.

APPLICATION OF EXISTING METHODS TO INFANTS AND SMALL CHILDREN

There should be no question, after the excellent reports by many well-known authorities, of the efficiency of the arm lift–back pressure method on all humans. However, I seriously question the safety factor with which this method may be efficiently applied to infants and small children, for the most part by willing but comparatively inexperienced hands and under the mental stress of a human catastrophe. In the presence of such emergency situations, excitement and fear of a possible fatal result is bound to prevail, and under such circumstances vital errors usually are committed. Probably the outstanding error most frequently committed is that of inadvertently exerting undue pressure on the rib cage in accomplishing the expiratory phase. Experienced personnel realize that such pressure is rather difficult to control if the maneuver is carried out according to standard instructions. Actually, the operator is not or should not be exerting pressure by pressing but rather by keeping the elbows stiff and using a rocking maneuver of his body, thus utilizing his upper body weight to effect the pressure that performs the expiratory phase. Consequently, as has happened in the past, even in experienced hands, ribs have been fractured accidentally, and in a number of cases lung tissue has been punctured. These complications have occurred in the past when the prone pressure method was the accepted one of preference and the pressure, for the most part, was supposedly applied in the region of the floating ribs, which anatomically have a variable amount of give over and above that usually possessed by a fixed rib. In contrast, it should be noted that, with the presently accepted arm lift–back pressure method, this pressure is exerted entirely on a fixed rib area that should be more vulnerable. In a final analysis it should be apparent that the greater the disproporation in the size and weight of the operator with that of the subject the more probable is the chance of accidental injury to the subject. Likewise, an overzealous operator, especially a lay person with limited practical experience, could perform in an unsafe manner, while his counterpart through knowledge and fear of the consequence of injury could perform in an overcautious and ineffective manner. In spite of these possibilities by inexperienced or experienced operators, the fact remains that in cases of injury, the arm lift–back pressure method, with the modifications as recommended, is the safest, most practical, and most effective method of manual artificial respiration in the majority of cases of adult asphyxiation.

The resuscitative span in the human species must necessarily extend from birth through infancy and early childhood and from young and older adults on into the aged groups to be all-inclusive. This thought was expressed, quite pointedly, by Dr. Julius H. Comroe Jr., who in September, 1950, while presiding over one of the sessions at a conference on artificial respiration held at the medical division, Army Chemical Center, Maryland, closed the discussion with several general remarks including: "From the various studies that have been reported here this morning possibly one has to find out whether the findings hold in small children, infants, and the aged." [3]

It is difficult to believe that the importance of this remark was completely missed by all in attendance at this conference, since many outstanding contributors to the field of artificial resuscitation were in the audience. However, I have no knowledge of any experimental work that has been done nor have I been able to locate any published experimental data concerning manual resuscitation in infants, small children, and the aged. It will be assumed that those who may have contemplated any such experimental work in these groups were deterred in their efforts by the same reasons that I have been deterred: 1. It would be very difficult, if not impossible, to find families who would volunteer infants and small children for any such experimental work, regardless of how safe the procedures were intended to be. 2. The courts would frown upon any such experimental work on minors. 3. Last, but most important, the workers themselves would be very reluctant to deliberately place infants and small children in a state of apnea, because of the inherent risk involved. In this respect it will be recalled that the subjects used by Gordon and co-workers [4] in their experimental work were normal human adults who volunteered their services and who were given curare and anesthetized.[5]

FOUR RESUSCITATIVE AGE GROUPS

Because of the unavailability of any such data at present and the high improbability of any being obtained in the near future, it becomes necessary for the purpose of this paper to assume that in a comparable way the experimental data obtained from the excellent work done on normal adults will be essentially applicable to infants and small children. It seems only reasonable to expect that these data on tidal exchange and venous return are applicable to infants and small children in a comparable way when their size and anatomic structures are compared with those of an adult. It has already been mentioned that artificial respiration must be applicable to all ages of the human species, and I will for convenience divide them into four approximate resuscitative age groups: (1) newborn infants, (2) infants and small children, (3) adults, and (4) the aged. The person's sex would not appear to have any direct bearing on the over-all subject of resuscitation with the possible exception of advanced pregnancy. In such cases it will be necessary to modify the procedure accordingly.

---

[2] Manual Artificial Respiration Media Fact Sheet, Department of Defense, Office of Public Information, unpublished report.

[3] Comroe, J. H., in discussion, in Special Report, Conference on Artificial Respiration, held at Medical Division, Army Chemical Center, Maryland, on 29-30 September 1950 (April) 1951, p. 37.

[4] Gordon, A. S.; Sadove, M. S.; Raymon, F., and Ivy, A. C.: Critical Study of Manual Artificial Respiration, J. A. M. A. **147**: 1444 (Dec. 8) 1951.

[5] Gordon, A. S.; Raymon, F.; Sadove, M., and Ivy, A. C.: Manual Artificial Respiration: Comparison of Effectiveness of Various Methods on Apneic Normal Adults, J. A. M. A. **144**: 1447 (Dec. 23) 1950.

Resuscitation of Newborn Infants.—Newborn infants will be mentioned only for completeness, as there is a more or less universal tendency to treat resuscitation of this group separately and as a special problem. The etiological factors are usually quite different and the emergencies occur at a time and place where it is basically not necessary to resort to manual methods of artificial respiration.

Resuscitation of Adults.—Resuscitation of adults is covered adequately by the arm lift–back pressure method with modifications in cases of injury and the arm lift–chest pressure method in cases of advanced pregnancy where the supine position would not seriously interfere with obtaining and maintaining an adequate airway.

Resuscitation of the Aged.—In the absence of any adverse experimental data in the aged group and in view of the practical results obtained in the past, it is felt that the same methods as applied to the adult group would be safe and efficient, provided cognizance is taken of any marked infirmities.

Resuscitation of Infants and Small Children.—The group infants and small children has purposely been changed to last for discussion because basically it is the subject and purpose of this paper. Before I go into the discussion and proposal of a new method, the question might very well be asked, what is or has been wrong with the old method? The truth of the matter is that all of the proposed methods of the past and present have serious shortcomings, from a practical standpoint, in infants and small children, and in a final analysis it is the practical application that determines the results in this group as well as in the others. These methods could not be considered safe, neither could they be deemed efficient. These are not simply words of condemnation; they are practical facts that can be attested to by individuals who have gained recognition in the practical application of resuscitation and as qualified operators. Probably among the outstanding groups in this category are the so-called rescue squads who are usually a part of the fire department of large and small municipalities. They are the groups who respond to most of our asphyxial emergencies and consequently receive most of the opportunities for practical application and evaluation of resuscitation methods, both manual and mechanical. However, these groups are becoming more and more dependent upon their excellent mechanical equipment rather than upon manual methods. Furthermore, the lapse in time of arrival, which is the most important single element in cases of asphyxiation, is not conducive to a recovery. Someone on the scene must be prepared to act intelligently, safely, efficiently, and, most important, immediately. Seconds are paramount, and they pass by very rapidly. This is not time to seek aid but rather the time to give it.

SPECIAL CONSIDERATIONS FOR INFANTS AND SMALL CHILDREN

In reviewing numerous textbooks on pediatrics, in respect to the weights and sizes of infants and small children included in this age group and in which such a method would have practical application, some general conclusions may be drawn. In a general way, one may conclude that such a method must be applicable in practice to infants and small children from the time they are taken home from the hospital weighing approximately 7 to 8 lb. (3,175.14 to 3,628.73 gm.) with an average over-all length of 20 to 21 in. (51 to 53 cm.) until they reach the age of 1½ to 2 years, weighing approximately 24 to 28 lb. (10.9 to 12.7 kg.) with an average over-all length of 31 to 33 in. (79 to 84 cm.).

This age group has been frequently and aptly referred to as children of the helpless age and children of the age of exploration. They constitute not only a very large group but also a group in which many asphyxial emergencies occur with, unfortunately, too many fatal results. According to the present trend toward increased birth rates, this group may likewise be expected to expand in the immediate future with a probable increase in asphyxial emergencies and deaths. Accounts in the daily newspapers throughout the country, as well as the syndicated press, would imply that this age group is exposed to more hazards that frequently lead to asphyxial death than any other group. If this is true, it is likewise true that many of these hazards are the result of the inherent human weaknesses to which we as adults are all subject. For example: The young mother didn't understand that a helpless infant could smother in a nice fluffy pillow or strangle in a crib or that the child left in the bath tub while she answered the door bell or telephone would drown in such a short time. The father never suspected that the neighbor's child could enter an unlocked and open gate to an otherwise well-fenced swimming pool and drown in the short time it would take him to answer the telephone. The corner grocery was just across the street, but the unguarded electric socket was closer than that to a mother's young explorer at the tender age of 1½ years. Thousands of such cases are known and many thousands more will, no doubt, be repeated. They serve to emphasize several important facts, namely, that this age group quite emphatically represents the helpless and exploratory children who will get into serious asphyxial situations and that, when inadequate or tardy precautionary measures are taken by adults in the name of safety, they too frequently result in a false sense of security. Most safety measures are designed to be absolute. However, when they are controlled by humans, many tend to become relative and accidents do occur. This fact has been proved too often to be ignored, and consequently what would seem to be the inevitable, especially in cases of asphyxiation in this age group, must be prepared for in advance. Time does not permit the calling of a rescue squad nor searching for a neighbor who knows "how." You are on the spot in more ways than one and what you know and do immediately will determine, to a large extent, what the ultimate result will be. Should help arrive, in the form of a rescue squad, their results will likewise depend to a large extent upon what you have done. Time lost through inactivity at the beginning cannot be regained at a later period. These facts have been reconfirmed just recently by interviews with some 50 well-informed practical operators in charge of well-equipped professional rescue squads.

After a general discussion of artificial respiration, both manual and mechanical, a number of questions were asked in reference to artificial respiration in infants and small children. The answers led to the following unanimous conclusions: 1. No safe and efficient standard method of manual artificial respiration is available. Such a method, if available, would have wide application almost daily. 2. More and more reliance is being placed on mechanical resuscitators. The results, however, are not generally favorable unless some manual effort has been made immediately prior to their arrival. 3. Mechanical resuscitators cannot be used effectively in the average case of submersion unless the patient has been rendered essentially dry by some manual method, and manual modifications currently in use are not generally effective. 4. One of the most difficult problems is to maintain an unobstructed airway without resorting to the use of a mechanical one (if available) with frequent use of the aspirator and interrupted resuscitation. 5. The arm lift–back pressure method has improved the results obtained with adults, but it is potentially dangerous or inefficient in this age group. 6. According to the records of these operators, asphyxial emergencies in this group are definitely on the increase, and this increase is due mainly to cases of submersion. 7. Present and proposed legislation requiring fenced in or covered private swimming pools is a step in the right direction, but you cannot legislate against human weaknesses and chances of error. 8. Finally, not only the operators but the general public must have some safe and efficient standard manual method available and be able to use it immediately before any improvement in asphyxial fatality rates in this age group may be expected or realized. It was also pointed out that, in order to develop public interest and participation in learning such a method, it could be introduced and made a part of the national civil defense program in respect to respiratory paralysis due to nerve gases. Generally, parents are more concerned about what they can do for their children than they are about their own safety.

SHORTCOMINGS IN PRESENT METHODS OF RESUSCITATION

I have mentioned serious shortcomings in present methods for this age group. Let us examine them in the order in which they appear and in the order of their importance. It has been stated previously that any practical and efficient method of manual or mechanical artificial respiration must provide not only artificial respiration but also artificial circulation, or at least enhance pulmonic circulation and venous return to the heart. This can best be accomplished by an active expiratory phase and an active inspiratory phase commonly referred to as a push-pull, rocking, or, in the case of mechanical resuscitators, alternating positive-negative action. However, before any of these methods may be effectively utilized, it is absolutely mandatory that an unobstructed and adequate airway be established and, I hasten to add, maintained. Many manual methods have been proposed; however, only those considered to be efficacious under practical circumstances and applicable to individuals in this age group will be discussed as to serious shortcomings in the different components comprising the resuscitative effort or technique.

Position.—There is little or no discussion necessary concerning position of the victim, since it is a universally accepted fact that a prone position is far superior to that of a supine position in cases of asphyxia in general. It is conducive to the expulsion of oral-nasal secretions and vomitus, and a moderately "head down" attitude of the body is likewise favorable toward gravitational postural drainage. Possibly the one important exception, as previously mentioned, would be the necessary use of the arm lift–chest pressure method (supine position) in cases of advanced pregnancy.

Airway.—One of the major problems, from a practical standpoint, has always been to obtain and maintain an unobstructed and efficient airway in all manual methods of artificial respiration and in all age groups. All texts and manuals emphasize the importance of obtaining an adequate airway before any resuscitative effort is started, and the usual instruction reads, "Quickly sweep your fingers through his mouth to clear out froth and debris and bring his tongue forward." Should it be assumed that this froth, or more frequently, thick mucus, in cases of asphyxia from submersion in salt water, will dry up spontaneously, or that a shapeless mushy tongue will remain in a forward position? If this were the case it would be superfluous to add to the instructions, "Stick a pin or nail through the tongue to keep it in a forward position and occasionally remove any froth or mucus that has formed." In most cases, a pin or nail is about as available as a modern resuscitator. The important fact is that the instructions continue as: "Begin artificial respiration and continue it rhythmically and uninterruptedly until spontaneous breathing starts or the victim is pronounced dead." Experienced operators in the practical application of any form of manual artificial respiration will freely admit that this is frequently one of the most serious complications with which they are confronted, and the condition becomes increasingly worse as the state of apnea is prolonged. I am referring to victims who actually require artificial respiration under circumstances far removed from experimental control. I, as well as many others, have found it absolutely necessary not only to break rhythm but to actually interrupt the artificial respiratory effort on numerous occasions in order to maintain a clear and unobstructed airway. It would be useless to continue under compromising circumstances, regardless of a gross breach in technique. There have been many occasions when inexperienced personnel have continued manual artificial respiratory efforts in the presence of a partial or occasionally a completely obstructed airway unaware of its presence, through lack of knowledge of the symptoms. The results can hardly be expected to be favorable.

Also, in those cases in which an approved mechanical resuscitator is immediately available, with an artificial airway and adequate aspiration, it frequently becomes necessary to repeatedly remove the mask and aspirate. The excellent report by Gordon and co-workers [4] states in part "In the strict sense of the word, manual artificial respiration refers to methods that can be executed by a single operator without the assistance of additional personnel, material, or equipment." [6] At the same time it should be noted that in another report Gordon, Fainer, and Ivy stated, "For the unequivocal comparison of the amount of pulmonary ventilation produced by the different methods, we kept the airway open by introducing and using a McGill endotracheal tube with an inflatable cuff. This yielded an air-tight fit, reliable results and an ideal airway." [7] While it is recognized that, since the major part of their study was concerned with the actual amount of pulmonary ventilation obtained by the various manual methods, the excellent comparative results would not appear to effect this major objective, since this ideal airway was used in all methods studied. Nevertheless one questions whether this, in the strict sense of the word and according to definition, was manual artificial respiration? There is no question about the procedure being indicated and necessary, not only to obtain the results but also, probably more significantly, to act as a safety factor for the volunteer subjects, in view of the means used to render them totally apneic. Certainly the intravenous administration of thiopental sodium and curare in itself presents certain possible inherent airway risks that must be guarded against by the introduction of an artificial or mechanical airway. Gordon and coworkers also mention that the tidal volumes with the push-pull methods may appear to be excessive.[8] A close examination of the spirometer tracings shown in their article, in respect to excursions above and below the base line, demonstrates quite clearly the presence of an excellent airway, since no evidence of even partial obstruction is revealed. It would, therefore, seem that what appeared to be excessive tidal volumes with the push-pull methods under study were, in no small part, the result of the use of the mechanical airway. In this respect the results obtained, in all probability, would not be equaled or even approximated in the practical application of these manual methods in actual cases of accidental asphyxia, especially when the etiological factor is one of submersion. The practical inference that I wish to draw from the preceding discussion is that, since an adequate and efficient airway is one of the first, as well as one of the most important, components of any method of artificial respiration, it must be recognized that what was an ideal and most efficient airway under controlled studies is seldom, if ever, met in actual cases of manual resuscitation. If the resuscitative effort is to be effective, however, an adequate airway in the manual methods must be obtained and maintained without artificial or mechanical means.

In infants and small children this problem from a practical point of view is more complicated than in adults. I believe that adults, in general, at some time or other during their life have been impressed with the fact that infants and small children are, under normal circumstances, generally wet. I refer to the cephalad end rather than the caudal, in keeping with the subject matter of this paper. Anyone who has been dribbled, bubbled, or drooled on is well aware of the fact that this age group either experiences a seemingly continuous form of oral hypersecretion, is unable to cope with normal secretions, or more probably suffers from a combination of both. Many explanations have been advanced for this condition, such as excessive salivary secretions, small buccal area, teething, or hypertrophied lymphoid tissue of Waldeyer's tonsillar ring. It would appear that this age group does not seem to possess the ability to inattentively cope with normal secretions in respect to the act of swallowing. Possibly the child needs something in its mouth to initiate this act, since when it is feeding from bottle or breast it does not appear to exhibit the difficulty to any great degree. I have observed a similar situation in adults, while attempting to relieve a simple ear block in naval aviators. The patient has been asked to close the nares by pinching the nose, close the mouth, and swallow. I have watched many of these patients make all sorts of frustrated attempts to complete the act of swallowing without success. Conversely, have them take a mouthful of water, hold it in the mouth, and repeat the preliminary procedure, and they perform the act of swallowing immediately with no effort. Whatever the explanation, the fact remains that infants and small children are unable to cope with oral secretions under normal circumstances, and this fact becomes a major complication when compounded with hypersecretions in cases of asphyxia, especially one of submersion. An adequate airway must not only be initially obtained but also be maintained throughout the resuscitative procedure. These patients should never be raised in the upright position after a resuscitative response, even though the gag and swallowing reflexes have returned. They should be kept in a slightly head-down position to permit postural drainage until complete recovery.

Pressures.—From what has already been said concerning the use of external pressures in the different methods of manual artificial respiration, especially concerning the difficulty of control with inherent risk of accidental injury, or overcautiousness with resulting inefficiency, it should be obvious that, if external pressures could be eliminated, the method would be much safer in this age group. Internal pressures utilizing the Eve rocking principle [9] are self-controlled, adequately efficient, and not dangerous. It should be noted that the Eve principle is referred to and not the Eve method,[10] which is strictly a mechanical one.

It should also be noted that dangerous pressures in this age group are not confined to those of the expiratory phase. The inspiratory effort, or arm lift phase of the Holger Nielsen method [11] could be just as dangerous, even in experienced hands. It is a well-known fact that the head of the humerus may be acidentally dislocated with very little unintentional pressure when an infant or small child is in a conscious state. Such an accidental dislocation is due mainly to the fact that infants and small children do not possess the inherent safety factor afforded a shoulder by well-developed muscles. In fact, in this age group there is little, if any, muscular development present. Such muscular development does not take place to any marked degree until a later date when, through general body activity and play, these muscles become strengthened and provide more stability to the shoulder girdle. When these facts are considered in a small child in a conscious state, it is not too difficult to imagine what the situation must be when such an individual is in a completely flaccid or unconscious state as a result of asphyxia. The so-called firm resistance that is met in adults in a similar state of flaccidity is barely perceptible, if present, prior to the point of accidental dislocation. Consequently, the margin of safety between adequate and efficient pulmonary ventilation and accidental dislocation bcomes a very narrow one. One could hardly recommend such a procedure as safe and efficient to a comparatively inexperienced general public.

---

[6] Gordon and others,[4] p. 1445.

[7] Gordon, A. S.; Fainer, D. C., and Ivy, A. C.: Artificial Respiration: A New Method and a Comparative Study of Different Methods in Adults, report of the Council on Physical Medicine and Rehabilitation, J. A. M. A. **144**: 1457 (Dec. 23) 1950.

[8] Gordon and others,[4] p. 1449.

[9] Eve, F. C.: Actuation of Inert Diaphragm by Gravity Method, Lancet **2**: 995 (Nov. 5) 1932. Killick, E. M., and Eve, F. C.: Physiological Investigation of Rocking Method of Artificial Respiration, Lancet **2**: 740 (Sept. 30) 1933.

[10] Eve, F. C.: Artificial Respiration Explained, Baltimore, Williams & Wilkins Company, 1946.

NEED FOR ACCEPTED MANUAL METHOD

From the discussion in the preceding paragraphs and other complications that have been alluded to but not discussed in detail, it would appear that at present no safe, efficient, or completely acceptable manual method of artificial respiration for infants and small children is available for general recommendation to the public at large. If there is, it certainly has not been well publicized and is not known to experienced operators, and I have been unable to locate any publications in regard to its existence.

That a critical need for such a method exists is in evidence almost daily in our newspapers: "Baby drowns in bath while mother answers door bell," "Small child electrocuted while exploring open electric plug connection with hairpin," "Infant smothers in crib," "Child strangles in crib," "Baby boy drowns in unguarded private pool,"—all cases of asphyxia that appear day after day, not usually in big headlines but in small deadly ones. Such incidents as these add up to shocking totals. They are disasters that pass almost unnoticed by the general public; however, they strike deeply the parents and neighbors, especially those who realize that in many of these cases the means of survival could have rested within the framework of their own individual hands. Once more, let me repeat that this is no time to seek aid but rather the time to give it.

Personal interviews with members of rescue squads, police, fire officials, and beach patrol directors in representative large and small municipalities in the United States and Canada have served to emphasize such a need. Many of these groups freely admit that too much reliance is being placed on their immediate arrival at the scene and that little or nothing constructive has been accomplished toward a resuscitative effort by individuals on the scene, pending their arrival. Many of these groups are not very optimistic concerning this lost time that cannot be regained in most instances and is certainly not conducive to recovery. Once more, the longer the state of apnea exists prior to the start of some resuscitative effort, the worse the prognosis. Conversely, we might add that the shorter the time from established apnea to some resuscitative effort, even minimal in effectiveness, the better the prognosis. Another important factor disclosed during these interviews was an attempt on the part of individual members of different groups, in lieu of any recognized standard manual method that was felt safe and effective in this age group, to modify or improvise methods in which the underlying physiological principles had been established. Many of these methods were witnessed in demonstration, but only three (fig. 1 and 2) could be considered provisionally efficient or moderately safe. In figure 1*A*, not only is the position bad, as the infant could very well drown in its own fluids, but it is very doubtful if the volume of pulmonary ventilation would be adequate in cases of even moderately prolonged apnea. Figure 1*B* represents a closer approach to safety and efficiency, since it utilizes the principle of the rocking method of Eve. The main objection would be the inability to obtain and maintain an adequate airway (both hands are occupied) and the inability to provide an effective volume of pulmonary ventilation, since the degree of the arc through which the infant may be rocked with any manner of safety (both hands occupied) is strictly limited. It is by far superior to figure 1*A* and for want of a better method could possibly be used with effectiveness in cases of apnea of very short duration. The ultimate prognosis would at best be guarded.

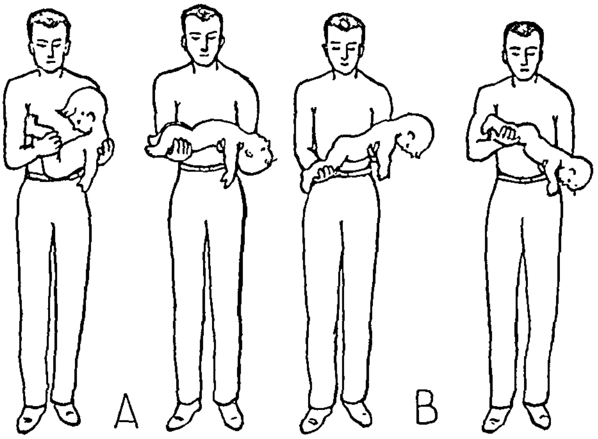


Fig. 1 —*A*, jacknife maneuver with baby on back. *B*, rocking method with baby in prone position.

Figure 2 represents the best modification with one hand grasping the feet. A safety factor is introduced that permits a greater rocking arc with increased ventilation; however, no airway is provided and the head receives no direct support. Consequently, in the head-up position (inspiratory), the head has a tendency to tilt forward producing a partial block in the airway.

---

[11] Nielsen, H.: Method of Resuscitation, Ugesk. læger 94:1201 (Dec. 15) 1932.

PROPOSED CRITERIA FOR NEW METHOD

What criteria of efficacy must an acceptable new method of manual artificial respiration meet in order for it to be recommended and approved by medical authorities and ultimately presented to the general public for practical application? The following criteria are proposed in the order of relative importance to the practical application of such a method based on my rather extensive experience with actual cases of asphyxia due to many causes. Most of these cases were due to submersion and complications resulting therefrom. These probably represent some of the most difficult cases of asphyxia with which an operator is confronted. This situation, as has already been explained, appears more compounded in infants and small children than in adults. Consequently, such a proposal must provide for the best practical components of manual resuscitation possible. 1. The speed with which the method may be applied to the victim following such a catastrophe is of paramount importance. Immediately is the one word that seems to satisfy the first component. 2. The prone position is by far the most desirable one in the majority of cases of asphyxiation. 3. An unobstructed, adequate, and continuous airway is mandatory in all methods of artificial respiration if the method is to be effective. An adequate airway throughout the resuscitative effort must be obtained and maintained. 4. The method must be rhythmic and uninterrupted until spontaneous breathing starts or the victim is pronounced dead. 5. An adequate, preferably a maximal, volume of pulmonary ventilation must be produced. 6. The possibility of injury by the use of uncontrolled external pressures must be eliminated, preferably utilizing internal pressure such as those involved in the Eve principle. 7. The push-pull principle, which also produces essentially artificial circulation, or at least favors venous return to the heart, resulting in an adequate mean arterial oxygen saturation, should be used. 8. The procedure should be executed by a single operator without the assistance of additional personnel, material, or equipment. 9. The procedure should be easy to teach and simple to learn, and it should be one that may be performed accurately, efficiently, and safely by anyone. 10. It must not be unduly tiring to the operator over a reasonable period of time (probably 10 to 15 minutes) and should provide modifications resulting in change of position to lessen the chance of operational or positional fatigue to the operator.

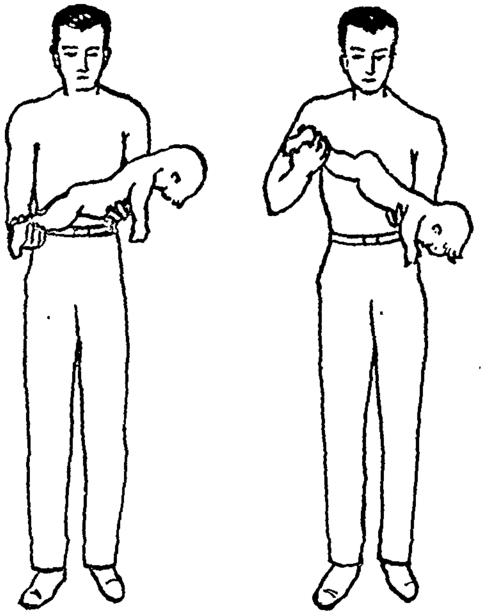


Fig. 2.—Rocking method with baby held by feet.

A manual method of artificial respiration that would provide for these components as listed would seem to be one that could be proposed as safe and efficient. Such a method, no doubt, could be termed new, even in view of the fact that several well-established and proved principles will be incorporated into the technique. Whether or not it will be approved and accepted by medical authorities, professional groups, and the general public for practical application should depend mainly upon how well it provides for the critical components of manual artificial respiration for this age group listed above.

The birth and proposal of any new method of manual artificial respiration demands a name, preferably one that not only is descriptive of the basic position and maneuvers but indicates and is a constant reminder to all operators that one of the practical fundamental acts in initiating any method of artificial respiration is to begin with the expiratory phase. The logic of this action is quite clear when one considers the possibility and probability of obstructive material lying in the region of the tracheal opening ready to be aspirated with the first inspiratory effort, if not preceded by one of expiration to clear the area. In many texts and publications on manual artificial respiration the descriptive terms of different methods are referred to as arm lift–back pressure, hip lift–back pressure (Schafer–Emerson–Ivy), and arm lift–chest pressure.

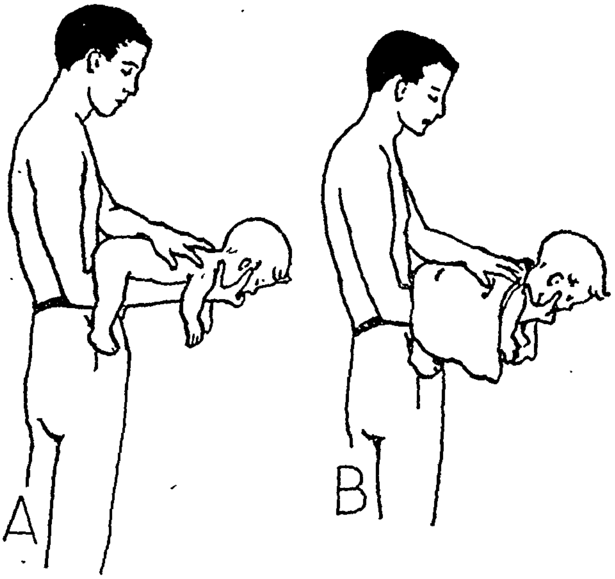


Fig. 3.—*A*, modified Mauriceau position, lateral view. *B*, same position with cover.

I seriously object to this inconsistency in position of descriptive terms for two reasons. First, it is not only incompatible with the best resuscitative procedures but also not consistent with descriptive techniques. The procedure should always begin with the expiratory phase and the descriptive term should so imply as, back pressure–arm lift or back pressure–hip lift. Secondly, it results in confusion in teaching since the lay person will invariably and instinctively practice in the order in which he repeats to himself and learns. It may be recalled that this teaching method was used to excellent advantage by instructors for the American National Red Cross in teaching the prone pressure method. The student was taught to repeat to himself "Out goes the bad air, in comes the good; out goes the bad air, in comes the good." While this procedure was primarily instituted in order to give him a sense of rhythm and timing, it likewise served to remind him that it was important to begin with the expiratory phase in order to avoid possible aspiration.

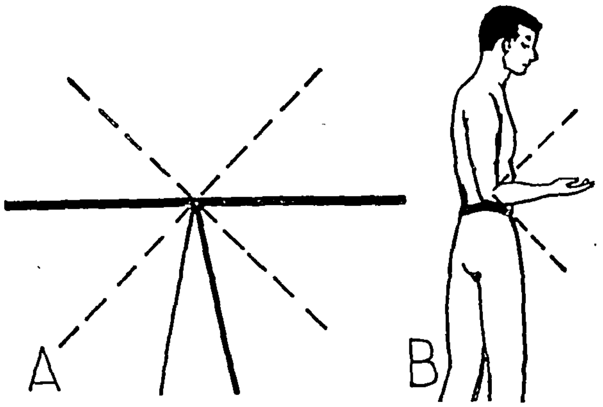


Fig. 4.—*A*, diagram of Eve method. *B*, Eve principle.

A review of the different manual methods of artificial respiration reveals that in the past it apparently was customary for the individual who devised and offered a new method or modification to associate his last name with the method followed by a suitable descriptive name. For example, we have the Silvester (arm lift–chest pressure); Schafer (prone pressure); Eve (rocking); Holger Nielsen (arm lift–back pressure) Schafer–Nielsen–Drinker (modification of Nielsen method); Emerson (hip lift); and Schafer–Emerson–Ivy (prone hip-chest method). It is presumed that this custom was initiated and continued for purposes of identification of each method or modification and to prevent confusion in the teaching of the different techniques. Whatever the reason, I will conform with the established precedent and continue the custom of the past.

Rickard Prone Tilting–Visceral Shift Method

There are two principles used in this new method, called the Rickard prone tilting–visceral shift method: first, the position of the subject during the Mauriceau breech extraction maneuver,[12] with appropriate modification to obtain and maintain a continuous digital airway and provide for extension of the lower jaw and lateral support to the head in order to maintain it in a midline position (fig. 3*A*). In this position, the subject may also be covered to preserve body temperature (fig. 3*B*). Second is the principle of the Eve method [10] (without the usual apparatus or device), used to eliminate the application of potentially dangerous external pressures (fig. 4). The descriptive title of this method indicates the position of the subject, the active expiratory and inspiratory phases, and the fact that safe pressures are supplied entirely by the shifting of the abdominal viscera.

POSITIONING OF SUBJECT

If the subject is found lying in the supine position (fig. 5*A*), the middle finger of the right hand, bent at the second joint to form a 90 degree angle, should be placed in the subject's mouth, over the tongue, in order to draw the tongue slightly forward and depress it into the floor of the mouth. The thumb and index finger and the ring and little finger are placed on either side of the lower jaw so as to extend it in a forward position and add lateral support and stability to the head, which is maintained in a midline position (fig. 6). The midline position of the head also aids in obtaining and maintaining a more direct and unhampered airway, in contrast to the usual positioning in other methods, where the head is turned to one side or the other, resulting in a torsion or twisting of approximately 90 degrees. Roll the subject over in a face-down (prone) position onto the right forearm with the arms and legs of the subject in a straddling and pendant position (fig. 3*A*). If the subject is found lying in a prone position, grasp his right thigh with the left hand, raising the body sufficiently to position the right hand and forearm as previously described and permit the subject to be lowered onto the right forearm in a prone and straddling position (fig. 5*B*).

The left hand is now placed (palm down) across the back with fingers spread on either side of the neck and hooking across the shoulders (fig. 3*A*). Such a positioning of the left hand not only adds to the security of the subject on the forearm but permits a greater angle of arc through which the subject may be tilted, with safety, in executing the basic maneuvers. It should be noted that the middle finger, not the index finger, is placed in the mouth (fig. 6). (Mauriceau's maneuver utilizes the index finger.) These positions of the operator's hands and fingers, as well as the position of the subject, are maintained throughout the entire resuscitative procedure.

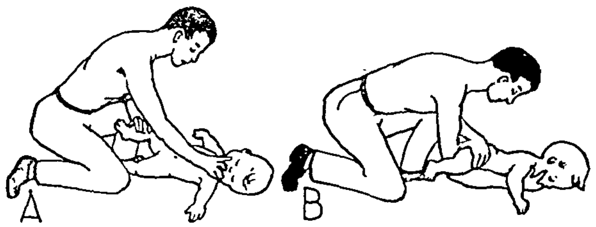


Fig. 5.—*A*, positioning from supine position. *B*, positioning from prone position.

POSITION OF OPERATOR

The operator should rise to a standing position with the subject draped across the forearm as described, keeping the forearm at right angles to the upper arm and parallel to the ground or floor (fig. 2*A*). The upper arm must be kept in close contact with the lateral chest wall, slightly anterior, in order to shift most of the subject's weight to the operator's shoulder girdle, thereby relieving the muscles of the upper arm from most of the so-called dead weight (fig. 7). It should be emphasized that these positioning maneuvers, both of the subject and the operator, while requiring considerable time to explain, actually are accomplished in a matter of seconds.

---

[12] Stander, H.: Text Book of Obstetrics: Designed for the Use of Students and Practitioners, 3rd revision, New York, D. Appleton-Century Company, Inc., 1945, pp. 1062-1063.

EXPIRATORY PHASE

Begin immediately and always with the expiratory phase (fig. 8*A*). Time is of prime importance. Do not delay for any secondary reasons such as moving the subject, loosening clothing, warming, or applying stimulants. Lower the forearm (extension) to a position of approximately 45 degrees, which will place the subject in a head-down attitude. The abdominal viscera will shift and push against the diaphragm in this position, forcing air out of the lungs. At the same time, expulsion and drainage of fluids and debris is accomplished not only by gravity but by the previously established and maintained airway.

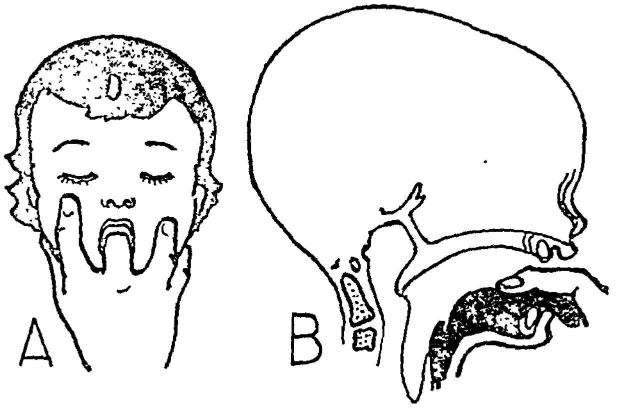


Fig. 6.—*A*, position showing showing digital airway. *B*, lateral view.

INSPIRATORY PHASE

At the completion of the expiratory maneuver, the subject will be raised to the inspiratory phase (fig. 8*B*), a head-up position of approximately 45 degrees, by lifting the forearm (contraction). The abdominal viscera will shift in the opposite direction from the previous one, releasing the pressure and causing an actual pull or tug on the diaphragm, due to the visceral ligamentous attachment. This maneuver will result in air being sucked into the lungs, completing the inspiratory phase and respiratory cycle.

RATE AND RHYTHM OF CYCLES

The rate of the tilting cycle should be between 8 and 12 times per minute through an arc of 45 degrees, head-down position, to that of 45 degrees, head-up position, in rhythmic and uninterrupted sequence, until spontaneous breathing starts or the victim is pronounced dead. It is highly recommended that the operator, in order to accomplish a reasonably accurate sense of timing and rhythm, repeat to himself the following phrases: "Out goes the bad air (expiratory phase), in comes the good air (inspiratory phase)" for a complete cycle rate of 12 times per minute; "Out goes the bad air and (expiratory phase) in comes the good air (inspiratory phase)" for a complete cycle rate of 8 times per minute. It should be noted that each expiratory phase (always the first maneuver) begins with the word "out" and that each inspiratory phase begins with the word "in." If this suggestion is followed and the count not hurried, it will be found that the first example requires 5 seconds per cycle and results in a rate of 12 cycles or respirations per minute. The second example, by insertion of the word "and" in the expiratory phase, requires approximately seven and one-half seconds per cycle and results in a rate of eight cycles or respirations per minute.

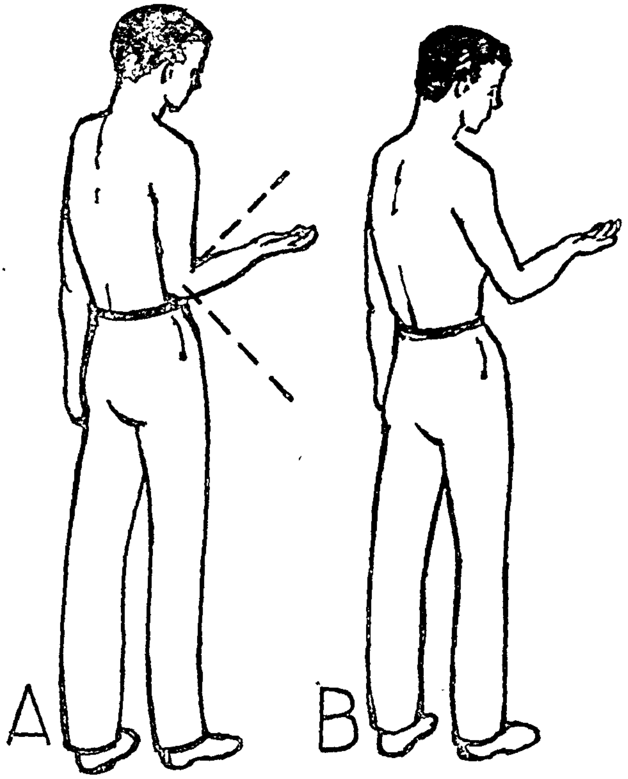


Fig. 7.—*A*, correct arm position with arm close to body. *B*, incorrect arm position with arm away from body.

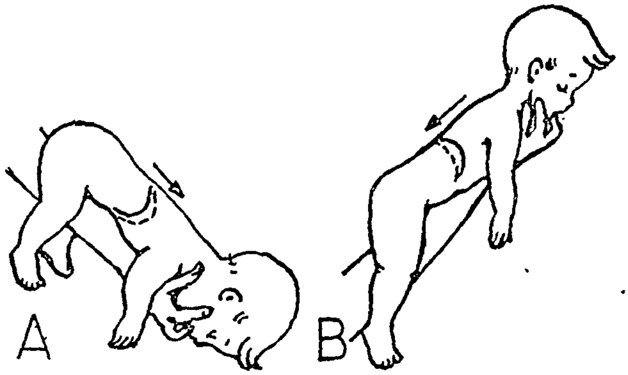


Fig. 8.—*A*, expiration-head-down position showing visceral shift against diaphragm. *B*, inspiration-head-up position showing visceral tug on diaphragm.

It should be realized that timing and degrees of arc are more relative than actual in the practical application of artificial respiration; however, a reasonable attempt to simulate normal respiration must be made. The average inexperienced operator has a great tendency to hurry these maneuvers unless some simple repeat-phase is used to give him a sense of rhythm and timing. In cases of asphyxia by submersion and other cases that are frequently complicated by excessive amounts of fluids, it would be advisable to use the eight times per minute cycle and limit the head-up position to a 30 degree arc until the victim has become essentially dry. At that time the rate should be increased to 12 times per minute and the head-up position to the full 45 degree arc. This precaution not only provides a slightly prolonged expiratory phase, during which more complete drainage of fluids takes place, but also lessens the chance of accidental aspiration. In fact, it has been reported, in studying these components, that a rate of 8 times per minute increased the volume of each cycle but not the minute volume as compared to 12 times per minute.[18]

MODIFICATIONS OF POSITIONS OF OPERATOR

After positioning the subject as previously described, the operator may, instead of rising to a standing position, kneel on the left knee, placing the right leg in a right-angle position with the thigh parallel to the ground. The operator's right elbow is then placed upon the right thigh sufficiently close to the knee to permit free action (45 degrees) in the downward tilt, and resuscitation is started immediately (fig. 9). Many asphyxial emergencies occur in places such as the home, private swimming pools, and other places where chairs, benches, tables, and other household and patio furnishings are immediately available. Under these circumstances of immediate availability of a suitable place to sit, the operator may even further conserve his energy by assuming positions as illustrated in figure 10 or 11. It should be noted in these diagrams (fig. 9, 10, and 11) that the two essential factors necessary for these modifications are: (*a*) the object be of sufficient height to enable the operator to function properly and (*b*) the thigh be kept at a close parallel with the ground and sufficiently above it to obtain the necessary 45 degree angle head-down tilt.

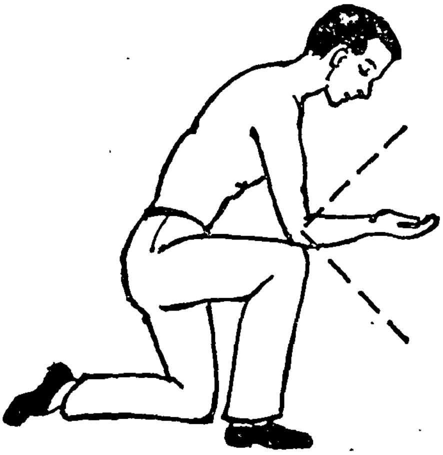


Fig. 9.—Modification to kneeling position.

All of these modifications may be used where possible to the operator's advantage and with no change in the basic resuscitative technique. The kneeling modification (fig. 9) is especially recommended as an alternate position with that of the standing position (fig. 3*A*), and the change may be accomplished without break in rate or rhythm. Resuscitation may be continued almost indefinitely by effecting this change, especially in the heavier children in this age group. The weight of the subject, as may be seen from the diagrams, is placed almost entirely upon the thigh and indirectly on the ground. The change in the operator's position also serves to eliminate any postural or positional fatigue at the shoulder that may occur with a heavy subject and an unusually prolonged resuscitative effort.

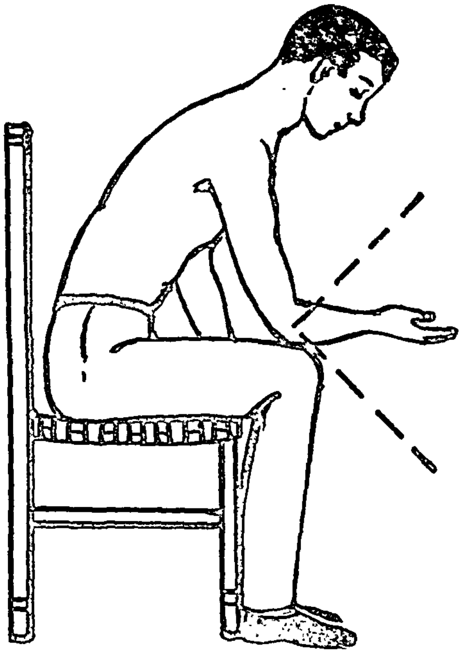


Fig. 10.—Modification to sitting position.

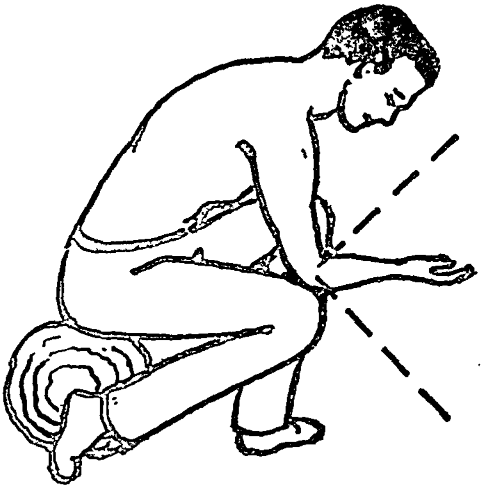


Fig. 11.—Modification to bent knee on low seat.

---

13. Gordon, A. S.; Fainer, D. C., and Ivy, A. C.: Artificial Respiration: A Comparative Study of Different Methods in Adults Including a New Method, in Special Report, Conference on Artificial Respiration, held at Medical Division, Army Chemical Center, Maryland, on 29-30 September 1950, (April) 1951, p. 73.

PRACTICAL USE OF DIGITAL AIRWAY

A rather important point in relation to the practical use of the digital airway should be explained. No provision has ever been made for such an airway in any method of manual artificial respiration in the past. Consequently, some misunderstandings or questions may be raised in the minds of those who have had limited experience with the practical application of resuscitation concerning predisposition to regurgitation and aspiration of stomach contents. It must be readily admitted that the possibility of accidental aspiration is present in all methods of artificial respiration, both manual and mechanical. The area in the immediate vicinity of the tracheal opening is never completely free of mucus and secretions in normal life. As a result we experience aspiration of small particles of food and fluid in a conscious state of being.

Certainly, then, this situation and possibility is not only present but actually compounded in a state of unconsciousness, where the swallowing reflex is completely abolished and hypersecretions and fluids are present. This condition is particularly true in cases of asphyxia by submersion. The introduction of a digital airway that is maintained throughout the entire resuscitative procedure would appear to greatly lessen the chances of such a condition occurring. In addition it will be recalled that the subject's head is maintained in a midline position with the lower jaw extended, thus providing a direct exit during the expiratory phase. Fluids are not retained in the buccal areas to be aspirated with each succeeding inspiratory phase, and the victim actually has a tendency to dry up more rapidly than in presently accepted methods. With these methods, which utilize the prone position with the head turned to one side or the other and the cheek resting on the hand, there is actually more chance of accidental aspiration, since the buccal area is not completely cleared of fluids and each succeeding expiratory pressure raises a little more fluid from the stomach. This fluid cannot be completely expelled from the mouth, even in a slightly head-down position of the victim, since the position of the head results in a torsion of the neck, an unextended lower jaw, and trapping of fluids. I feel that this situation will be improved by the introduction and provision of an adequate airway with maximal chance of a rapid clearance of fluids and with actually less chance of accidental aspiration.

PEDAGOGIC AND PERFORMANCE FACTORS

Assessment of the degree of difficulty in teaching, the accuracy of performance, and the degree of discomfort and exertion by prospective operators, in a practical sense, is essential. This presented quite a problem in the evaluation of this new method of artificial respiration. I felt that, since the method, as proposed, advocated the use of several components that were new or had new application, in comparison to those currently in use on adults, it was only proper that it be presented to medical groups first. Consequently, a large group of nonmedical personnel was purposely avoided in obtaining the assessment data of the pedagogic and performance factors in order to prevent predisclosure, with possible adverse results. In addition, it was realized that this information could not be obtained from actual practice on live and conscious subjects, even if available. The presence of the swallowing and gag reflexes would prohibit the application of the airway component, and it was felt that the position advantage (prone) of the Mauriceau maneuver as well as the advantage of the Eve principle utilizing internal pressures were too well known to require extensive evaluation.

A random selection of operators, with no previous instruction in this method, was made and the method explained and demonstrated, with the use of partially filled sandbags of varying weights including those of 7, 14, 21, and 30 lb. (3.2, 6.4, 9.5, and 13.6 kg.). Manikins were used to demonstrate the application and positioning of the middle finger to maintain the digital airway and the use of the remaining fingers to extend the lower jaw and add support to the head in a midline position. A stop watch was used to time the speed of application and to devise suitable repeat phrases in order to develop uninterrupted rhythm timing of 8 and 12 cycles per minute. The pedagogic information obtained was that after one period of instruction, all personnel, without exception, were able to repeatedly place the method in operation within an average period of six seconds, and no difficulty was experienced with any component or its execution. The general conclusion was that it was easy to learn.

Next, the performance factor was assessed by using sandbags representing the approximate weights and relative sizes of infants and small children ranging from one week of age (8 lb. [3,628.7 gm.], 21 in. [53 cm.]) to 2 years of age (30 lb. [13.6 kg.], 34 in. [91 cm.]). Note that the relative sizes as given represent the measurements from head to foot and, since the legs are straddled across the forearm, no difficulty was experienced in these representative groups. The length of the forearm of the average individual will easily accommodate this age group without any interference to the required range of angle at the operator's elbow joint. The operators performed the technique in a rhythmic and uninterrupted manner for a period lasting 10 minutes. The 10-minute period was felt to represent a reasonable one for manual artificial respiration; however, many of the operators continued for periods as long as 15 and 20 minutes with the lighter weights (8 to 16 lb.) and did not feel unduly tired. Under emergency conditions it was felt that these longer periods could be duplicated and even extended if necessary. There was one factor that was noticed by all operators. This condition was noticed in the use of the heavier bags (24 to 30 lb.) and was not one due to activity of the forearm but rather inactivity of the shoulder. It could be termed a positional or stability fatigue. Since most of the victim's weight is transmitted to the operator's shoulder girdle indirectly, it was noted that, as the 10-minute period approached the last few minutes, the operators, while holding the upper arm close to the body, attempted to move it slightly anterior to the lateral chest wall in order to gain support to the shoulder by anchoring the elbow. The condition was described, not as a tiring one, but as an uncomfortable or crampy feeling in the shoulder muscles relieved by a slight position change that gave support to the elbow. With this evidence and experience in mind, I devised several modifications to the basic position of the operator that not only eliminated this situation and were quite applicable to the heavier children but could be used routinely by female or young operators of slight physical stature. They have been described and illustrated previously.

The results of the assessments were expressed in a unanimous opinion by the operators that the method was easy to learn and not tiring at all with the lighter weights and only moderately so with the heavier weights. They could continue under emergency conditions by simply shifting the position of the upper arm. The shifting does not interfere with the accuracy of the performance nor with the efficiency of the method; however, it can be avoided completely by using the previously described positional modifications.

COMMENT

The critical need for a practical, safe, and efficient method of manual artificial respiration in infants and small children has been substantiated by personal observations and interviews among groups of professional operators who perform 90 to 95% of the rescue work in the United States and Canada and probably throughout the world. This particular age group represents one in which the opportunity for accidental asphyxial emergencies is greater than in any other age group throughout the span of life. It is, likewise, a group in which the anatomic development and the physiological processes have not had sufficient time to develop any marked safety factor or reserve, as compared to the adult.

Consequently, whatever is to be accomplished in a resuscitative way must be prompt, safe, and efficient. These criteria can only be met by someone on the scene and in possession of a method based on sound medical recommendations. In a final analysis, the determination of the most efficacious method will not come solely from laboratory results. The groups who provide the practical application of all intelligently proposed and approved methods for the rescue of humans must give the final evaluation regarding these methods, as it pertains to human resuscitation.

SUMMARY AND CONCLUSIONS

The descriptive name, Rickard prone tilting–visceral shift, that has been assigned to a new method of manual artificial respiration for infants and small children indicates the position of the victim and that the expiratory phase is the initial one and the shifting viscera produce an active expiratory and inspiratory phase, or a push-pull method. The development was based on two sound and proved principles; namely, utilization of the position in the Mauriceau maneuver, with practical modifications and application of the principle of the Eve rocking method.

The method is strictly manual by definition in that it is executed by a single operator without the assistance of additional personnel, material, or equipment. A continuous digital airway is introduced for the first time in manual artificial respiration, and the head of the victim is placed and supported in the midline, eliminating the torsion that is present in other methods when the head is turned to one side or the other. External pressures that have proved dangerous in the past have been replaced by safe and effective internal pressures that are self-controlled—the push-pull action that has been proved most effective.

The method is simple to teach and easy to learn and does not require any great expenditure of effort or unusual degree of discomfort to the operator in order to perform accurately, safely, and efficiently for what has been determined to be a reasonable period of 10 to 15 minutes. Use of the recommended modifications, although not necessary, will alleviate any tendency to positional fatigue experienced by the operator. As mentioned before, the modifications are practical suggestions that may be utilized if circumstances permit.

The method was devised to be used in an age group ranging from 7 to 8 lb. (3,175.1 to 3,628.7 gm.) to a maximum of 28 lb. (12.7 kg.) in weight, which represents in age a small child from one week of age up to a maximum of 2 years of age. It will be recognized at once that many 2-year-olds have developed sufficiently in size, weight, and muscular support that the Holger Nielsen (arm lift–back pressure) method may be applied with a certain amount of caution.

From a practical point of view, it is felt that application of this method fulfills the criteria that have been proposed for an efficient, safe, and acceptable method of manual artificial respiration in infants and small children. It has been repeatedly emphasized and authenticated that proposed and enacted legislation to enforce safety factors will not ever result in absolute prevention. While it is a step in the right direction, it too frequently results in a false sense of security. The fact remains, as stated and recorded by those who respond to the majority of asphyxial emergencies, that these cases are on the increase. Most important of all is the well-established, practical assertion by these groups of professional operators that the element of time from the discovery of a case of apnea until an operator arrives on the scene is of paramount and critical importance to the success or failure of resuscitation.

This situation appears to be particularly true in children of the helpless and exploratory ages. The present lapse in activity must be replaced by active and intelligent resuscitative effort of an approved and effective nature if results are to be improved in the future. Certainly, if recovery is a possibility, immediate and effective resuscitation is the one and only single factor that will result in its accomplishment. Failure in this respect can be attributed only to lack of interest by society, since all members, with few exceptions, possess the fundamental requisites to accomplish this end and have them available for immediate use at all times—the hands.

FIFTY YEARS OF ORGANIZED ANESTHESIOLOGY

Albert M. Betcher, M.D., Benjamin J. Ciliberti, M.D., Paul M. Wood, M.D.
and
Lewis H. Wright, M.D., New York

The oldest society organized for physicians interested in anesthesiology in this country traces back to a group founded by Dr. A. F. Erdmann. He invited these physicians to a meeting at the Long Island College Hospital in Brooklyn, N. Y., on Oct. 6, 1905. Eight physicians responded that evening to his invitation to get together and form an anesthesiology society. Although there probably were other groups who had met before this date, this society, named the Long Island Society of Anesthetists, has been meeting formally and continuously, changing only its name, to the present day (fig. 1). On that memorable evening, plans were made for regular business and scientific sessions, and dues were set at one dollar per year. The records of this infant society are unfortunately incomplete for the next few years due to a fire in 1911 at the home of the secretary, in which all records were burned except for the original notebook in which the constitution was written. But, during these years, the society met regularly and conducted its scientific sessions on new anesthetic equipment and methods of administration of the agents then employed.

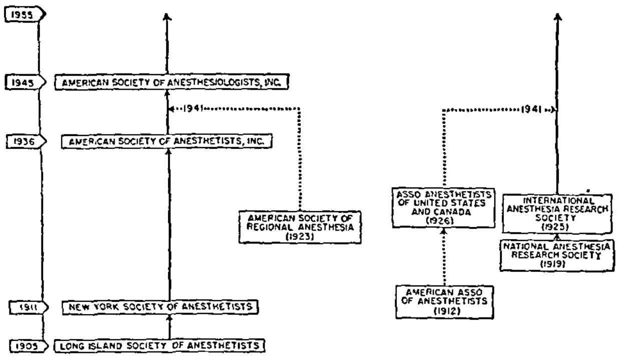

1955
1945
1936
1911
1905
AMERICAN SOCIETY OF ANESTHESIOLOGISTS, INC.
1941
AMERICAN SOCIETY OF ANESTHETISTS, INC.
AMERICAN SOCIETY OF REGIONAL ANESTHESIA (1923)
NEW YORK SOCIETY OF ANESTHETISTS
LONG ISLAND SOCIETY OF ANESTHETISTS
1941
ASSO ANESTHETISTS OF UNITED STATES AND CANADA (1926)
INTERNATIONAL ANESTHESIA RESEARCH SOCIETY (1925)
NATIONAL ANESTHESIA RESEARCH SOCIETY (1919)
AMERICAN ASSO OF ANESTHETISTS (1912)

Fig. 1.—Historical development of American Society of Anesthesiologists and International Anesthesia Research Society.

In 1911, pressure was put on the Long Island Society of Anesthetists to move over to Manhattan. The founders had set the number of charter members at 50, and at this time they were still short of that figure. It was urged that many anesthetists outside Brooklyn would join because of the great interest in the scientific sessions. Thus, at the May 31 meeting, a committee was appointed to present a plan for a new constitution. In October of the same year, while Erdmann was president, the name was officially changed to the New York Society of Anesthetists. Dr. James T. Gwathmey was elected the first president at the second regular meeting of the New York Society of Anesthetists on Feb. 7, 1912. Dues were increased to $3 per annum, and the purpose of the society was defined as the advancement of the science and art of anesthesiology. The charter membership was now completed. Continued interest in the possibility of the organization's being national in scope led to more requests by physicians for membership. In fact, there were 103 physicians present at the May 12, 1912, meeting. It was at this meeting that the executive committee was instructed to consult with the American Medical Association about forming a section on anesthesiology within the latter organization.

In the meantime, other organizations in the field of anesthesiology were appearing in this country. Although an organization called the American Association of Anesthetists had had a first formal meeting during the American Medical Association convention in Minneapolis in June 18, 1913, its activities did not become important until one of the foremost pioneers in American anesthesiology, Francis McMechan, took over the reins. In addition, in 1915, he organized the Interstate Association of Anesthetists of Ohio and Kentucky. By 1916, as organization secretary of the American Association of Anesthetists, he directed the society's policy. McMechan enlarged it so that, by 1926, it was changed to the Associated Anesthetists of the United States and Canada. At the same time, the Interstate Association was changed to the Midwestern Association of Anesthetists. McMechan also helped to found the Canadian Society of Anesthetists, which later became the section on anesthesiology of the Canadian Medical Association. He also aided in the formation of the Pacific Coast Association of Anesthetists, the Eastern Society of Anesthetists, and the Southern Association of Anesthetists. All these sectional societies later became regional societies of the Associated Anesthetists of the United States and Canada.

Still the organizational enthusiast, McMechan, in 1919, founded the National Anesthesia Research Society in Cleveland. This society was promoted by E. I. McKesson, a manufacturer of anesthesia appliances, and was meant to include manufacturers of anesthetic drugs and apparatus, who, as nonphysicians, were ineligible for membership in the above organizations. In fact, there were laymen on the governing board of the National Anesthesia Research Society. In 1925, it became exclusively professional. In this year, the name was changed to the International Anesthesia Research Society to include anesthetists from all over the world. As a result of visits McMechan made to other countries, the board of governors inaugurated the International College of Anesthetists. They planned to certify specialists in anesthesia by 1936. The American Society of Regional Anesthesia was started by a group of anesthetists and neurosurgeons in 1923. Its original intent was to honor Gaston Labat, who had developed the art

---

Read before the Section on Anesthesiology at the 104th Annual Meeting of the American Medical Association, Atlantic City, June 8, 1955.

of local infiltration and nerve block techniques. Although it was a small organization, its existence later proved of inestimable value.

Meanwhile, the New York Society of Anesthetists regularly conducted its programs of business and scientific sessions. Prominent speakers, including nonanesthetists contributed to those sessions. Candidates for membership appeared from the neighboring states of New Jersey, Pennsylvania, Connecticut, Massachusetts, and Maryland. By 1915, there were 70 members. An "associate membership" for dentists who showed special qualifications in anesthesiology also helped to increase the membership. The year 1917 saw members of the New York Society of Anesthetists offering their services as individuals to serve in the armed forces as specialists in anesthesiology. Drs. Booth, Buchanan, Guedel, Gwathmey, and Munkittrick were among those who served overseas, organized training centers, and contributed to resuscitative measures for patients exposed to poison gas. At the meeting of Nov. 8, 1917, Major George W. Crile, who had just returned from the war front, addressed the membership. At the conclusion of the war, the New York society attempted to gather the fruits of the gains made during the war effort. Efforts were restarted in 1921 to obtain a section on anesthesiology in the American Medical Association; however, letters sent to the Secretary and responsible committees of the American Medical Association met with no success for the next 10 years.

STEPS TOWARD A. M. A. RECOGNITION

In 1933-1934 the Advisory Board for Medical Specialities was set up. This board did agree to meet with an anesthesiology committee, but only representatives from the International Anesthesia Research Society and the Associated Anesthetists of the United States and Canada were invited. Although there was representation in the New York Society of Anesthetists of physicians from throughout the country, its "local" name precluded an invitation. However, since only organizations that had sections in the American Medical Association could be considered, this invitation was meaningless. The New York Society of Anesthetists then directed its efforts to raise its own standards by granting certification by the society. Late in 1934, they empowered their committee on certification to print application blanks for the granting of fellowships in anesthesiology. Their plan was to hold a written, oral, and practical examination in accordance with the principles of the Advisory Board for Medical Specialties. This plan eventually would be submitted for approval to the advisory board.

Meanwhile, candidates from states beyond the eastern Atlantic seaboard area were applying for membership in the New York society. These included anesthetists from Ohio, Texas, Georgia, Minnesota, Oklahoma, and Nevada. These efforts, literally due to the one-man crusade of the secretary-treasurer, Paul M. Wood, renewed hope of recognition by the American Medical Association of the specialty of anesthesiology. By the time of the Jan. 15, 1936, meeting, several members had received the certificates, designating them as "Fellows in Anesthesiology." Among those recommended for fellowship were Joseph Lumbard and Moses Krakow of New York, Ansel Caine of New Orleans, Charles McCuskey of Los Angeles, Ralph Waters of Madison, Wis., and Sidney Wiggin of Boston. There was further evidence of the national character of the New York society in the recommendation of Paul M. Wood for a revision of the constitution to include a new permanent committee, the public relations committee.

All these events, coming with such rapidity after 1934, stimulated the executive committee of the New York society to such a fervor that they polled their members by mail for their reaction to changing the name of the society. At the following meeting on Feb. 13, 1936, with excitement evident in the hall, the secretary-treasurer explained the reason for the proposed change in name. The motivating purpose was to make this society a national anesthesiology society, in name as well as in fact. Nothing would be changed except to replace the words "New York" with "American" througout the constitution. He reviewed the unwillingness of the American Medical Association and the Advisory Board for Medical Specialties to accept any organization whose title might indicate a local society. It followed, therefore, that, to assume the responsibilities of a national organization, it must have a name that was national in character. Of the 124 replies received to the questionnaire, 120 had been in favor of and 4 had been opposed to the change. One of those opposed had been its founder, A. F. Erdmann, who had feared being swallowed up by a new organization, as occurred in 1911, when the Long Island Society had become the New York Society of Anesthetists. However, as he voiced these fears aloud, he concluded, "I am overwhelmed by the recognition of the changes which will take place and by the fact of the necessity for making these changes."

The first business taken up after changing the name to the American Society of Anesthetists was the appointment of John Lundy to represent the group at a meeting of the American Medical Association and of the Advisory Board for Medical Specialties. However, neither group showed any enthusiasm for prompt approval. Then a possible solution appeared as a result of the group's previous efforts to elevate its status. Ralph Waters, one of the early advocates of uniting the basic medical sciences with clinical anesthesiology, had instituted a five year residency program in anesthesia at the University of Wisconsin. E. R. Schmidt, professor of surgery at the same university, was influenced by the anesthesia program of Waters and was very anxious to see the anesthetist keep pace with the surgeon in professional recognition. At the time the American Society of Anesthetists changed its name, Schmidt was in the East to amalgamate the various surgical societies in order to obtain a board of surgery. He intimated to the anesthesiology society that, if the American Medical Association refused to recognize any additional specialties, he would ask the surgical group to certify anesthetists as an associate board to the American Board of Surgery. As Buchanan reported this meeting to the society membership, "It is a long hard fight, but we eventually, I think, will get our place."

To obtain recognition as a specialty by the American Board of Surgery, it was necessary to have representation of some of the national societies of the specialty. Invitations were extended, therefore, to the International Anesthesia Research Society, the Associated Anesthetists of the United States and Canada, and the American Society of Regional Anesthesia, as well as to the American Society of Anesthetists. The first two societies decided against joining in this plan of certification; however, the small organization called the American Society of Regional Anesthesia, almost extinct because of its lack of dues-paying membership, allied itself with the American Society of Anesthetists. It retained a spark long enough to justify the prepared statement sent to the Advisory Board for Medical Specialties. The statement declared that anesthesiology was a specialty and as such should be recognized and that an American board of anesthesia was being formed and had representatives from the national organizations.

On Dec. 10, 1936, the old society with the new name was officially incorporated as the American Society of Anesthetists, Incorporated. A new constitution and bylaws were adopted, making dentists no longer eligible for membership. The offices of secretary and treasurer were separated. The governing and advisory body was to be a board of directors of 18 members. The constitution likewise provided a committee on fellowship, consisting of nine members. Annual dues for the 487 members were now increased to $5. The members were urged to attend the American Medical Association meeting at Atlantic City, N. J., in June, 1937, to register in the Section on Surgery and to add the word "anesthesia" in parentheses. In October, 1936, three representatives from the Section on Surgery of the American Medical Association met with representatives of the two national anesthesiology societies that had requested a certification board. It was recommended that the anesthetists' representatives to the board be appointed from the Section on Surgery. The first representatives were to be fellows of the American Society of Anesthetists. With this recommendation, the Section on Surgery accepted the responsibility of sponsoring anesthesiology as a related section. Subsequently, at the meeting in Chicago to set up the American Board of Surgery, the Advisory Board of Medical Specialties recommended that the anesthesiology societies apply to the American Board of Surgery to join on the basis of an affiliate board.

The plans for affiliation of the American Board of Anesthesiology with the American Board of Surgery were completed on June 2, 1937. The plan was approved by the American Society of Anesthetists and the American Society of Regional Anesthesia. It conformed in all respects to the examining boards of other medical specialties. The members and associate members of the examining board were selected by a committee representing the above two anesthesia societies and the Section on Surgery of the American Medical Association. In February, 1938, the Advisory Board for Medical Specialties approved the affiliation. Official recognition of physicians competent to practice and teach anesthesiology as a specialty was now an accomplished fact.

Now, in 1939, the American Society of Anesthetists turned its efforts again to establish a section on anesthesiology in the American Medical Association. California, Connecticut, and Indiana had already established sections on anesthesiology in their state medical societies. There was an awareness that the American Medical Association was more friendly to organized medical anesthesiology. A further inquiry led to a proposed meeting with the A. M. A. Council on Scientific Assembly for November, 1939. In advance of this meeting, the group was further heartened by the receipt of a letter from James E. Paullin, Chairman of the Council of Scientific Assembly. It read in part: "Of course, I cannot speak for the entire council, but I do believe that the establishment of a Section of Anesthesiology would be for the good of the American Medical Association and I think it would help your specialty very much—a subject in which I wish to say I am enthusiastically interested."

The Council on Scientific Assembly at the above meeting agreed to recommend to the House of Delegates that a section on anesthesiology be established. In June, 1940, at the Annual Meeting of the American Medical Association, the House of Delegates voted unanimously to establish the Section on Anesthesiology in the American Medical Association. Anesthesiology was now a recognized specialty. In the meantime, rumors were heard that the six affiliate surgical boards of the American Board of Surgery were in favor of separating and becoming separate individual boards. Since anesthesiology had gained its own section, this was now possible. In 1941, the Advisory Board for Medical Specialties approved the American Board of Anesthesiology as a separate major board, with the unanimous consent of all participating societies and boards.

ATTAINMENT OF OTHER GOALS

There was still another objective in the minds of the original founders—the formation of a journal devoted to anesthesia. In 1914, at McMechan's persuasion, the *American Journal of Surgery* established a quarterly supplement of anesthesia and analgesia in that publication. It became the official organ for the existing anesthesiology societies and was continued for about 10 years. McMechan, himself, after founding the National Anesthesia Research Society, provided this organization with a monthly bulletin, which was enlarged in 1922 to the present official organ, *Current Researches in Anesthesia and Analgesia.* This was the first medical journal in the United States devoted entirely to anesthesiology. In 1937, the journal club of the section on anesthesia of the Mayo Clinic started a publication, *Anesthesia Abstracts.* It was under the editorial direction of John Lundy and is still published today.

The New York Society of Anesthetists in 1935 began to mimeograph reports of its business and scientific sessions. Copies were sent to the membership and provided a means of disseminating the latest advances in anesthesiology. In 1938, McCarthy of Toledo, Ohio, chairman of the committee on public relations of the American Society of Anesthetists, started a monthly newsletter. It included reports on anesthesiology from recognized journals. In October of the same year, a committee was appointed to obtain information regarding a journal representing the American Society of Anesthetists. Early in 1940, an editorial board, policy committee, and consulting editors were appointed. The new journal was named *Anesthesiology*. The first issue appeared in July, 1940, and was sent to 568 members and 300 additional subscribers. It has been published bimonthly since and today has a combined circulation of 7,231 copies per issue.

Still another purpose of organized anesthesiology was to expand educational facilities in medical schools and hospitals. In 1935, the committee on education of the New York Society of Anesthetists sent a questionnaire to 87 medical schools in the United States and Canada about the teaching of anesthesiology in their curriculum. Of the 75 schools that replied, 58 listed anesthesiology instruction as a separate subject given by a physician, 5 listed anesthesiology instruction given by nurses, 5 listed anesthesiology instruction as part of surgery or pharmacology, and 7 gave no instruction in anesthesiology at all. The society then published a resolution that the departments of anesthesiology in medical schools and hospitals should be in charge of a certified specialist in anesthesiology who should have direct supervision of the teaching of this subject to undergraduates and graduates. Albany Medical College, the University of Georgia, Stanford University, and the University of Vermont soon thereafter appointed certified specialists in anesthesiology to head these departments.

In 1938, the educational committee of the society set up a placement bureau for physicians desiring resident appointments in approved residency programs. It also announced short refresher courses in postgraduate instruction and listed hospital and medical school appointments in anesthesiology. The number of approved hospital residencies rose from 10 in 1933 to 49 in 1945. At the listing of approved hospital residencies in the Sept. 25, 1954, issue of THE JOURNAL of the American Medical Association, the number had risen to 188. The latest questionnaire sent to medical schools in 1954 showed that only 11 had autonomous departments in anesthesiology. The remaining departments are divisions or sections of surgery. All the chiefs of anesthesiology hold professorial rank, but of varying status (fig. 2).

The final objective of the founders' group was to bring the medical anesthetist to equality with the other specialists in medicine. From 1915 to 1934 the New York Society of Anesthetists, at various times, tried to get the public health law of the state of New York amended to include the administration of anesthetics in the practice of medicine. In 1939, when the anesthesia society was national in name as well as fact, it suggested that the problems of amending state laws for the practice of medicine and of working on the various phases of economic or legal practices, including hospital insurance plans, could best be handled on a local level. A number of state sections of the American Society of Anesthetists were thus set up for this purpose. In addition, it was planned to hold scientific meetings.

LATER DEVELOPMENTS

During World War II, there was a curtailment of activity, since many of the members were in the armed forces. The Articles of War of the Army and Navy Regulations had been revised to recognize the specialty of anesthesiology. Standard colors for the gas cylinders were achieved in 1942. Work on fire and explosion hazards was limited by the war needs. The major manufacturers agreed to standardize equipment. In April, 1945, the society changed its name to the American Society of Anesthesiologists, Inc. It also established an annual Distinguished Service award. As the end of the war neared, there were 739 members in the armed forces. A large number had become interested in anesthesiology while in service. They were concerned particularly in the plans of the society to increase the residency programs in anesthesiology. A further impetus to attract these men into the specialty was the declaration by the House of Delegates of the American Medical Association that the administration of anesthetics was within the practice of medicine. The final objective had been achieved.

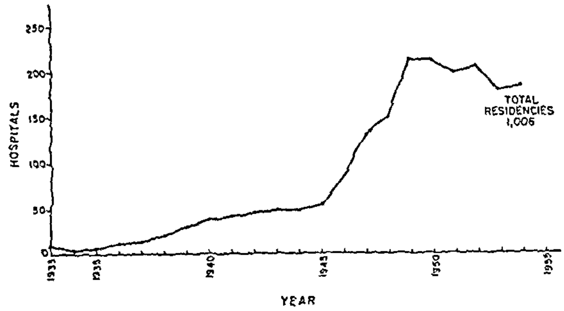


Fig. 2.—Rise in approved hospital residency programs in anesthesiology.

In 1946, the society had 2,147 members. Returning veterans found residencies in 63 training centers. Temporary approval of the residency programs of hospitals was granted to accommodate about 700 men who had been separated from the service. The first fellowship in anesthesiology given by the National Research Council was awarded in September of that year. The Morton Centennial and the Ether Centenary were celebrated in Boston in October under the aegis of the American Society of Anesthesiologists. By 1947, the realization that the society had expanded into an organization of over 2,400 members prompted the appointment of a permanent executive secretary as coordinator for activities. A new constitution and bylaws were adopted, providing for government of the society by the executive committee, a board of directors representing geographical regions of the United States and Canada, and a house of delegates composed of representatives from each state, the territories of the United States, and the provinces of the Dominion of Canada. The first annual meeting in which the house of delegates met was the St. Louis meeting in November, 1948. It heralded the coming-of-age of the society. A speaker and vice-speaker were added in 1953.

The new constitution also provided for component societies on state, territorial, and provincial levels. Each state society patterned its constitution after that of the parent society and, with the receipt of a charter, was allotted representation in the house of delegates. The formation of these component societies has provided a means of handling problems on a local level and of solving matters peculiar to a particular region. One of the important revisions in the new constitution was the establishment of the American College of Anesthesiologists. It was to be under the control of the society and replaced the committee on fellowship. This committee, set up in 1936 to certify anesthesiologists as fellows, became virtually inactive after the establishment of the American Board of Anesthesiology. It had been intended to continue designating as fellows in anesthesiology those anesthetists who could not qualify for the American Board of Anesthesiology and yet deserved some type of certification. When the American College of Anesthesiologists was set up in 1947, the members of the dormant fellowship committee became its board of governors. All anesthesiologists holding certificates previously issued by the committee automatically became fellows of the American College. From 250 fellows in 1947, the membership has steadily increased until there are now 1,335 fellows certified by the American College of Anesthesiologists. It has encouraged physicians to enter the specialty, enabled them to attain a high degree of competent safety, and provided a category of recognition for those who are qualified but do not limit their practice to the specialty of anesthesiology. In addition, the American Society of Anesthesiologists compiles a list of short postgraduate courses of instruction for physicians interested in part-time practice of anesthesiology as well as refresher courses at its annual meetings. The former list, from 110 centers of instruction, is sent each year to the American Academy of General Practice. General practitioners who enroll for these approved courses are given credit by the academy.

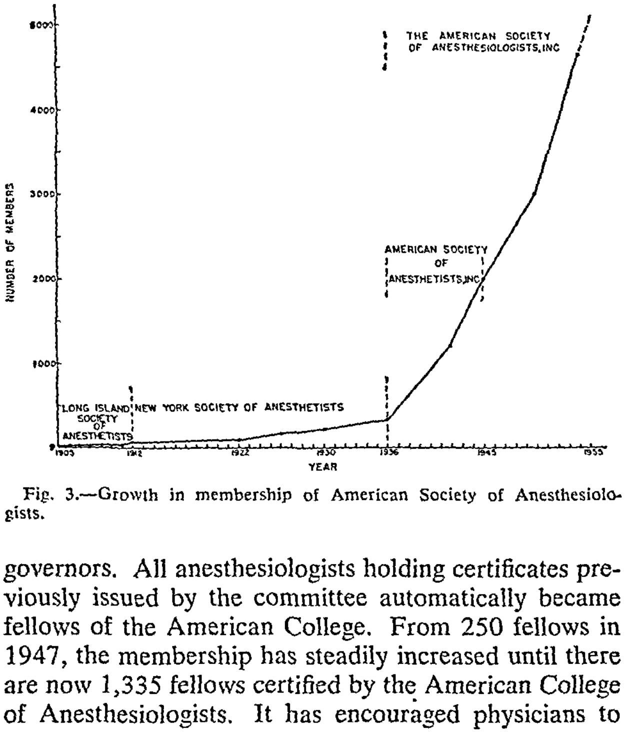


Fig. 3.—Growth in membership of American Society of Anesthesiologists.

The library-museum of the society, officially opened in 1937, has gradually added to its material until it now has available more than 800 exhibit pieces, 4,000 reprints, and 1,600 books. At the direction of the house of delegates at the 1949 annual meeting, a nonprofit organization, called the Wood Library-Museum of Anesthesiology, was formed. It is the official repository for the archives and equipment pertaining to anesthesiology of the American Society of Anesthesiologists and receives a yearly grant from the society.

PRESENT STATUS

Today we have an organization that has grown from a membership of 9 in 1905 (fig. 3) to a membership of 4,714, the Section on Anesthesiology in the American Medical Association, the American Board of Anesthesiology, the American College of Anesthesiologists, a library-museum, a journal of anesthesiology, and training standards in the medical schools and hospitals to elevate the status of anesthesiology and increase the measures of safety for the patient. The functions of the society are reflected in the set-up of its committees and subcommittees, which number more than 29 standing and special committees. Other special committees are appointed as the need for a new activity or as a problem arises. After 50 years of striving to achieve the goals of the founders, namely, to elevate the status of the physician-anesthesiologist and to safeguard the patient during surgery, have we achieved the maximum result? What is the future of organized anesthesiology? Perhaps we can find the answer in the president's address at the 1954 annual meeting of the American Society of Anesthesiologists in Cincinnati. He predicted that the membership of the society would double in the next 10 years, due to the increasing demand for anesthesiologists and the continued expansion of the nation's medical schools; that it would be necessary to install a board of trustees of the American Society of Anesthesiologists; and, finally, the most important, that the economic and professional status of the anesthesiologist would be established in the next decade, in a respect similar to that of any other physician in the clinical practice of medicine. Furthermore, just as the obstetrician has replaced the midwife, the anesthesiologist will replace the technician of anesthesiology within the next generation.

1435 Lexington Ave. (28) (Dr. Betcher).

Tricuspid Stenosis.—Recent reports of surgical treatment of tricuspid stenosis emphasize a need for an accurate method of diagnosing this lesion, which is difficult to recognize clinically, since it is usually overshadowed by mitral stenosis which invariably accompanies it. Although there are clinical signs suggestive of tricuspid disease, such as pigmentation of the skin, peripheral cyanosis, abnormal jugular venous pulsations, expansile pulsation of the liver, ascites in the absence of pulmonary congestion, murmurs in the tricuspid area, enlargement of the heart to the right, and abnormal P waves in the electrocardiogram, it is still difficult, even with the evidence provided by these signs, to make a confident diagnosis of tricuspid stenosis. However, Wood and Chesterman and Whitaker have described a means of diagnosing tricuspid stenosis from an abnormal blood pressure gradient between right auricle and ventricle. Recently, blood pressures similar to those described by these authors have been recorded in three patients who were found subsequently, at operation or autopsy examination, to have severe tricuspid stenosis, thus confirming that an abnormal blood pressure gradient across the tricuspid valve is a valuable sign of tricuspid stenosis.—Whitaker, William, M.D., M.R.C.P., The Diagnosis of Tricuspid Stenosis, *American Heart Journal*, August, 1955.

ESTIMATION OF TOTAL CIRCULATING SODIUM

Carroll M. Leevy, M.D.
and
Francis J. Donovan, M.D., Jersey City, N. J.

Studies of total circulating hemoglobin and protein[1] suggest that a similar quantitation of plasma sodium might be helpful in patients with sodium imbalances. This is a preliminary report of plasma volume and serum sodium determined simultaneously in patients with clinical evidence of water and electrolyte disturbances. These investigations indicate the desirability of knowing the state of the plasma volume as well as concentration of sodium for optimum diagnostic and therapeutic perspective in patients with suspected alterations of circulating sodium.

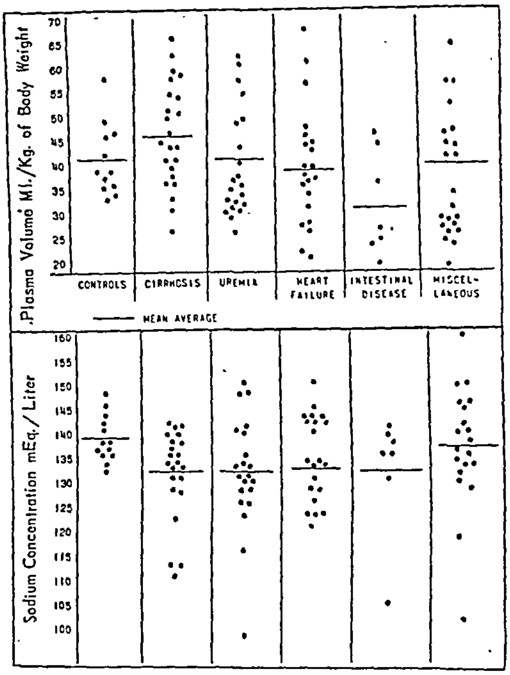


Fig. 1.—Plasma volume (top) and serum sodium concentration (bottom) studies on 13 control patients and 92 patients with body sodium abnormalities.

MATERIALS AND METHODS

Studies were performed on 13 normal subjects and 92 patients with body sodium abnormalities. Fluid and electrolyte disturbances were due to cirrhosis of the liver in 22 patients; heart failure in 21 patients; renal insufficiency in 21 patients; systemic disease with dehydration, fluid accumulation, or acid-base imbalance in 21 patients; and intestinal disease in 7 patients. Plasma volume was determined with standardized Evans blue, T-1824, by use of a modification of the method of Gregersen.[1] Plasma concentration of Evans blue was measured with an Evelyn spectrophotometer in specimens obtained without stasis 10 minutes after injection of the dye. The serum sodium level was determined with the Janke flame photometer by the indirect method. The total circulating sodium value was obtained by multiplying sodium concentration in milliequivalents per liter by plasma volume in liters.

OBSERVATIONS

Plasma volume ranged from 32 to 50 ml. per kilogram of body weight; serum sodium concentration varied from 134 to 148 mEq. per liter; and total circulating sodium ranged from 4.5 to 8.0 mEq. per kilogram of body weight in normal subjects. There was no specific pattern of plasma volume or serum sodium concentration characteristic of the disease states studied (table 1).

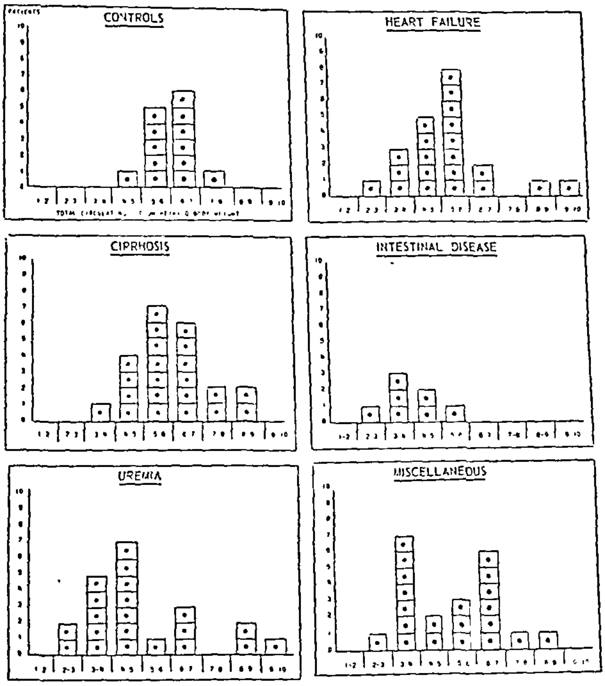


Fig. 2.—Average total circulating sodium in 13 control patients, 22 patients with cirrhosis, 21 with uremia, 21 with heart failure, 7 with intestinal disease, and 21 with miscellaneous systemic disease.

The plasma volume (fig. 1, top), serum sodium concentration (fig. 1, bottom), and average total circulating sodium (fig. 2) varied considerably. Symptoms were usually correlated with circulating sodium. Marked decrease in total circulating sodium was associated with hypotension, oliguria, and azotemia. These symptoms were rarely present with alterations in concentration of serum sodium or plasma volume if total circulating sodium was normal. Estimation of circulating sodium was found to be of practical help in the diagnosis and treatment of salt depletion, salt or water intoxication, and dehydration.

From the Department of Medicine, Jersey City Medical Center. Dr. Leevy is now a lieutenant commander in the United States Naval Reserve at St. Albans, Long Island, N. Y. Dr. Donovan is now in Boston.

Miss Mary L. Nemshick gave technical assistance in this study.

[1] Gregersen, M. I.: Blood Volume, Ann. Rev. Physiol. **13**: 397, 1951.

Simultaneous study of plasma volume and serum sodium concentration is valuable in deciding whether decreased serum sodium concentration is principally due to body salt depletion, shift of sodium into cells in response to potassium depletion, or primary water retention. This is an important decision in an acutely ill person such as the "waterlogged" nephritic patient, the patient with cirrhosis of the liver in hepatic coma, or the cardiac patient after operation. The total circulating sodium is usually low in uncomplicated salt depletion in contrast to a normal level in sodium redistribution and a normal or increased level in primary water retention. Estimated circulating sodium gives a base line for repair of hyponatremia and permits objective evaluation of the effectiveness of therapy. Hypertonic saline is the treatment of choice in patients with low serum sodium levels due to salt depletion [2] (table 2, case 1); however, it is contraindicated in other causes of hyponatremia. Failure to differentiate hyponatremia due to salt depletion and hemodilution may contribute to the high mortality reported in the low-salt syndrome.[3] Treatment of decreased serum sodium concentration, which occurs with negative potassium and nitrogen balance, consists of correcting the etiological mechanism and replacing deficient potassium and protein.[4] Fluid restriction corrects hyponatremia due to primary water retention (table 2, case 2).

TABLE 1.—*Average Values of Simultaneous Determination of Plasma Volume and Serum Sodium*

	Plasma Volume, Ml./Kg.	Serum Sodium Concentration, mEq./Liter/Kg.	Total Circulating Sodium, mEq./Kg.
Normal subjects	41.5 ± 5.2	139.1 ± 0.3	6.0 ± 0.7
Congestive heart failure	39.3 ± 9.4	138.3 ± 6.1	5.2 ± 1.2
Hepatic cirrhosis	45.2 ± 7.9	132.1 ± 6.3	6.0 ± 1.1
Uremia	39.9 ± 9.1	132.6 ± 7.9	5.1 ± 1.4
Intestinal disease	31.1 ± 9.0	132.9 ± 8.5	4.1 ± 0.9
Miscellaneous	37.6 ± 10.7	137.9 ± 8.4	5.2 ± 1.4

Estimation of total circulating sodium permits recognition of salt depletion, although the concentration of serum sodium remains normal. Uncomplicated loss of body salt is rarely accompanied by changes in serum sodium concentration. This is due to activity of osmoceptors that maintain normal concentration.[5] Hyponatremia is noted in patients with salt depletion when hemodilution occurs in response to the body's effort to maintain an adequate plasma volume.[6] A normal serum sodium concentration may mislead the clinician. Better insight is provided by study of plasma volume in addition to serum sodium concentration. We have found it desirable to determine the total circulating sodium repeatedly in patients with fluid retention refractory to therapy. This is illustrated by a patient with heart failure treated with the rice and fruit diet and daily mercurial diuretics. She developed anorexia, hypotension, oliguria, and an elevated nonprotein nitrogen level during the course of therapy. The low-salt syndrome was suspected; however, her serum sodium concentration remained within the normal range. The total circulating sodium was reduced from 7.7 mEq. to 3.9 mEq. per kilogram of body weight. The circulating sodium estimation provides a guide for treating salt depletion when serum sodium concentration remains normal (table 2, case 3). It has also been valuable as a method of determining the need for sodium bicarbonate or lactate in metabolic acidosis. These salts are contraindicated in renal insufficiency or diabetic coma if the circulating sodium level is normal or increased. Given under these circumstances, they do not improve the acidotic state and may induce further electrolyte imbalance and precipitate salt intoxication (table 2, case 4). Alkali may be lifesaving where there is a low serum pH accompanied by a decrease in circulating sodium.[7]

TABLE 2.—*Data Illustrating Value of Simultaneous*

				Laboratory Results			
				Plasma Volume, Ml./Kg. of Body Weight		Serum Sodium, mEq./Liter	
Case No.	Disease State	Treatment Given	Clinical Results	B *	A †	B	A
1	Laennec's cirrhosis with low-salt syndrome and hepatic coma	Hypertonic saline	Hepatic coma disappeared	32.2	42.3	118.8	144.8
2	Congestive heart failure with fluid retention refractory to sodium restriction and diuretics	Water restriction	Fluid mobilized and hyponatremia controlled	66.0	56.4	127.6	138.0
3	Heat exhaustion with peripheral vascular collapse	Isotonic saline	Disappearance of symptoms and signs of salt depletion	29.1	42.7	141.7	137.9
4	Renal insufficiency and acidosis due to chronic pyelonephritis	Molar sodium lactate	Production of hyperelectrolytemia and pulmonary edema	56.2	85.1	142.2	141.0

* B—Before therapy. † A—After therapy.

Study of total circulating sodium has facilitated the differentiation of hypernatremia due to dehydration [8] from the elevated serum sodium level seen in salt intoxication and from the physiological elevation of serum sodium level occasionally noted in central nervous system and endocrine disorders. The circulating sodium level is normal in dehydration, whereas it is increased in other causes of hypernatremia. This distinction is

---

2. Schroeder, H. A.: Renal Failure Associated with Low Extracellular Sodium Chloride: The Low Salt Syndrome, J. A. M. A. **141:** 117 (Sept. 10) 1949.

3. Uricchio, J. F., and Calenda, D. G.: The Failure of Hypertonic Saline in the Treatment of Hyponatremia and Edema in Congestive Heart Failure, Ann. Int. Med. **39:** 1288, 1953.

4. Darrow, D. C., and Pratt, E. L.: Fluid Therapy: Relation to Tissue Composition and the Expenditure of Water and Electrolyte, Council on Foods and Nutrition, J. A. M. A. **143:** 365 (May 27) 1950; 432 (June 3) 1950.

5. Verney, E. B.: Absorption and Excretion of Water: Antidiuretic Hormone (Sharpey Schafer Memorial Lecture, abridged), Lancet **2:** 781, 1946.

6. Leaf, A., and Mamby, A. R.: An Antidiuretic Mechanism Not Regulated by Extracellular Fluid Tonicity, J. Clin. Invest. **31:** 60, 1952.

7. Kety, S. S.; Polis, B. D.; Nadler, C. S., and Schmidt, C. F.: The Blood Flow and Oxygen Consumption of the Human Brain in Diabetic Acidosis and Coma, J. Clin. Invest. **27:** 500, 1948.

8. Welt, L. G., and others: Role of the Central Nervous System in Metabolism of Electrolytes and Water, A. M. A. Arch. Int. Med. **90:** 355 (Sept.) 1952.

helpful when an elevated serum sodium level occurs during the course of parenterally given fluid therapy or in association with other electrolyte disturbances.

COMMENT

It has been shown that there is no correlation between total exchangeable sodium and serum levels [9] and that a variety of factors influence body sodium economy. New methods of study have reemphasized the necessity for concern with abnormalities of both extracellular and intracellular electrolytes and stress the danger of dealing with one compartment without considering exchanges. Ideally it would be helpful to know the sodium content of the interstitial area and body cells as well as the plasma. It is now possible to obtain such information by combining results of volume assays and isotopic dilution studies. Further refinement of available techniques may provide a simple and accurate means to serially quantitate all body electrolytes.

It is agreed that no single laboratory test is as helpful as general clinical appraisal in recognition and treatment of sodium imbalances. Estimation of total circulating sodium provides a practical addition to current methods of study. Quantitative study of urinary sodium has been employed to evaluate the state of body sodium and interpret serum sodium alterations.[10] Fluctuations of adrenal reserve and renal function often independently alter urine sodium and limit usefulness of this type of study in patients requiring emergency therapy.

The reliability of either Evans blue or iodinated human serum albumin methods for study of plasma volume [11] and the availability of serum sodium by flame photometry make estimation of total serum sodium a practical procedure. Constant cognizance must be had of technical limitations and errors inherent in the procedures as performed. Serial determinations are more helpful, as they provide insight into long-range adjustments. Repeated use of Evans blue was accompanied by an untoward reaction in two patients in this series. These patients developed an anaphylactoid reaction that subsided spontaneously.

The clinician must be aware of disturbances of protein, water, and other electrolytes in evaluating total circulating sodium. After demonstrating an abnormality in circulating sodium, the decision as to what treatment, if any, is desirable depends upon the causative mechanism and the general metabolic state.

SUMMARY

Estimation of total circulating sodium by simultaneously determining serum sodium and plasma volume revealed a value of 6.0 mEq.±0.7 per kilogram of body weight in normal subjects. Specific disease processes are not associated with a characteristic pattern. Values range from a low of 3.0 mEq. per kilogram in salt depletion to a high of 12.4 mEq. per kilogram in salt intoxication. The total circulating sodium estimation may permit differentiation of hyponatremia due to salt depletion and primary water retention when one of these mechanisms is principally responsible for a decrease in concentration of serum sodium. It facilitates recognition of plasma sodium deficits with normal serum concentration of this ion. This type of study has improved therapeutic perspective in patients requiring prolonged treatment for fluid and electrolyte disturbances. Quantitation of circulating sodium appears to be a valuable adjunct to history, physical examination, and other fluid and electrolyte measurements in diagnosis and treatment of serum sodium disturbances. Constant cognizance of its limitations is essential to proper use in clinical medicine.

Determination of Plasma Volume and Serum Sodium

Total Circulating Sodium, mEq./Kg.		Laboratory Results											
		Total Circulating Sodium, mEq.		Potassium Concentration, mEq./Liter		Chloride Concentration, mEq./Liter		Hematocrit, %		Protein Level, mEq.		24 Hr. Urine Sodium, mEq.	
B	A	B	A	B	A	B	A	B	A	B	A	B	A
3.7	6.0	178.2	289.0	5.0	5.0	91.4	103	42	41	16.5	16.5	25	60
8.7	7.7	791.1	710.4	4.0	4.1	100	101	37.4	37.5	12.4	13.1	150	156
4.0	5.8	255	372	4.7	4.4	102.9	103.0	44	43	16.0	16.0	4.3	71.3
8.0	12.4	511.9	797.3	4.4	4.5	107.9	109.8	24	23	15.1	13.7	..	..

---

[9] Moore, F. D., and others: Body Sodium and Potassium: III. Inter-Related Trends in Alimentary, Renal and Cardiovascular Disease: Lack of Correlation Between Body Stores and Plasma Concentration, Metabolism 3: 334, 1954.

[10] Weston, R. E.; Escher, D. J. W.; Grossman, J., and Leiter, L.: Mechanisms Contributing to Unresponsiveness to Mercurial Diuretics in Congestive Failure, J. Clin. Invest. 31: 901, 1952. Moore, F. D.: The Low Sodium Syndromes of Surgery: Outline for Practical Management, J. A. M. A. 154: 379 (Jan. 30) 1954.

[11] Berson, S. A.: Blood Volume in Health and Disease, Bull. New York Acad. Med. 30: 750, 1954.

Reaction of Patient to Chronic Disease.—A patient enters a chronic illness as [he would] . . . a *foreign land. He can no* longer orient himself by accustomed landmarks; he has given up his own routines of living; and in so far as his usual symbols of communication take on new meanings and new references, he must even learn a new language. The reactions of patients with tuberculosis have been given considerable study. It has been recognized that they are in a sense uprooted people, isolated from their past and current life environments, not only by their infection and by the nature of their sanitarium experience, but as much by their own sense of difference from those with whom they have lived in intimate association. They may have reactions of sensitivity and defensiveness; they may become alert to rejection, fearful of their dependent needs, and angry with the unsympathetic world they project as an image on the screen of their preceptions.—J. V. Coleman, M.D., Attitudes of Professional Personnel in the Treatment of the Tuberculosis Patient, *American Journal of Public Health,* July, 1955.

CLINICAL RESULTS OF SELECTIVE LEUKOTOMY BASED ON INTRACEREBRAL ELECTROGRAPHY

Magnus C. Petersen, M.D., Henry W. Dodge Jr., M.D., Carl W. Sem-Jacobsen, M.D., Jorge A. Lazarte, M.D.
and
Colin B. Holman, M.D., Rochester, Minn.

Since Feb. 27, 1940, a total of 503 mentally ill patients have undergone prefrontal leukotomy at the Rochester (Minn.) State Hospital. The open method of Lyerly [1] has been used exclusively. The early operations were graded 4 on the scale devised by Love.[2] As much as possible of the white matter was cut in the plane of the coronal suture. Undesirable after-effects, such as inertia, confusion, and untidiness, always were in evidence after the operation. Most of the patients tended to become obese, and in many some masking of the facies developed. In order to prevent or to minimize these unpleasant sequelae, the trend has been to cut less extensively.[3] In all cases, the cut has been made in the plane of the coronal suture. Therefore, the variations have been in the extent and in the location of the cut in this plane.

STUDY OF ELECTRICAL POTENTIALS

In 1949 a study of the electrical potentials encountered in the depth of the frontal lobe in man was commenced.[4] The recordings were made in the operating room on patients undergoing prefrontal leukotomy. Disadvantages resulting from time limitations, from changes in potentials caused by surgical trauma, from the introduction of a rather bulky electrode, and from anesthetic agents soon became evident. Many of the difficulties were overcome by changes in procedure made possible by replacing the electrodes then in use with flexible electrodes. These could be implanted and left in position for long periods of time before the leukotomy was performed.[5] Thus, the pattern, properties, and distribution of electrical rhythms encountered in the depth of the human brain could be studied in the laboratory under controlled conditions.[6] In this manner electrical potentials in the frontal lobes of 73 patients have been studied through 2,294 recording tips. In the plane of the coronal suture, waves of 2 to 4 cps were invariably recorded from a circumscribed area in the ventromedian quadrant of the frontal lobe. The size of this area, in most cases, varied from 1 to 2 cm. in diameter. The location was fairly constant but varied slightly from patient to patient. It should be emphasized that these wave forms, which are considered abnormal by conventional surface electroencephalographic standards, were always encountered in depth but were not seen in recordings from the scalp.

The finding in the ventromedian quadrant of the frontal lobe of a circumscribed area having a specific electrical activity induced us to limit the cutting to this region. Since July 14, 1953, this selective prefrontal leukotomy has been performed on 63 mentally ill patients. Fifteen of them were male and 48 were female. They ranged in age from 16 to 72 years. Three were below 20 years of age and 47 were between 20 and 49 years of age, while 13 were 50 years of age or older; the average age was 38.1 years. The duration of the mental illness varied from 1.5 to 36 years, the average being 9.4 years. These patients had been hospitalized continuously for periods of time varying from three months to 35 years, the average being 5.5 years.

Condition of Patients by Diagnosis

Diagnosis	Total	S. A.*	M. I.	S. I.	N. I.	Died
Involutional	4	2	1	..	..	1
Schizoaffective	7	2	4	..	1	..
Schizophrenia, hebephrenic	5	2	2	..	..	1
Schizophrenia, catatonic	17	2	10	4	..	1
Schizophrenia, paranoid	24	6	18	..	..	..
Mental deficiency	3	..	2	1	..	..
Organic	3	..	..	3	..	..
Total	63	14	37	8	1	3

* S. A. = social adjustment; M. I. = much improved; S. I. = slightly improved; N. I. = not improved.

CLINICAL RESULTS

The clinical results as of Nov. 12, 1954, are summarized by diagnoses in the table. The evaluations were made from personal observations, from reports submitted by relatives of the patients, or from both. By "social adjustment" is meant that the patient has been dismissed from the hospital and has resumed his or her place in society. The patients classified as "much improved" may be either in or out of the hospital. If they are out of the hospital, they are still in need of guidance and some supervision. If they remain in the hospital, they require but little supervision, and usually they are good workers. By "slightly improved" is meant that the patient is more pleasant, less disturbed, and in better contact with reality than he was before the leukotomy. The term "not improved" is self-explanatory.

From the Mayo Foundation, the Rochester State Hospital (Drs. Petersen, Sem-Jacobsen, and Lazarte), and the Mayo Clinic (Drs. Dodge and Holman).

Read before the Eighth Clinical Meeting of the American Medical Association, Miami, Fla., Dec. 2, 1954.

The Mayo Foundation is a part of the Graduate School of the University of Minnesota.

The studies in intracerebral electrography have been supported in part by a research grant from the Minnesota Department of Public Welfare.

[1] Lyerly, J. G.: Transsection of the Deep Association Fibers of the Prefrontal Lobes in Certain Mental Disorders, South. Surgeon **8**: 426-434 (Oct.) 1939.

[2] Love, J. G.: Prefrontal Lobotomy in the Treatment of Mental Diseases: Surgical Technic, Proc. Staff Meet. Mayo Clin. **18**: 372-373 (Oct. 6) 1943.

[3] Petersen, M. C., and Love, J. G.: Graded Lobotomy, Am. J. Psychiat. **106**: 65-68 (July) 1949.

[4] Bickford, R. G.; Uihlein, A., and Petersen, M. C.: Electrical Rhythms Recorded from the Depth of the Frontal Lobes During Operations on Psychotic Patients, Proc. Staff Meet. Mayo Clin. **28**: 135-143 (March 11) 1953.

[5] Dodge, H. W., Jr., and others: Symposium on Intracerebral Electrography: Technic of Depth Electrography, Proc. Staff Meet. Mayo Clin. **28**: 147-155 (March 25) 1953.

[6] Sem-Jacobsen, C. W., and others: Electroencephalographic Rhythms from the Depth of the Frontal Lobe in 60 Psychotic Patients, Electroencephalog. & Clin. Neurophysiol. **7**: 193-210 (May) 1955.

As shown in the table, 14 (22.2%) have made satisfactory social adjustment and 37 (58.7%) are much improved. Thus, 51 (80.9%) can at this time be classified under the heading of good results. Nine persons, so far, have shown little or no improvement. One of them is mentally deficient and possibly epileptic, one suffers from congenital athetosis and psychosis, and two have psychosis with hereditary chronic progressive chorea with mental deterioration (Huntington's chorea). At this time, 16 are out of the hospital. Three very disturbed patients died.

REPORT OF CASES

Case 1.—A divorced woman, 38 years old, was first hospitalized for mental illness in 1945. Her main complaints were that people in some mysterious manner were harming her, causing her eyes to burn, and giving her headaches. She improved under electrotonic treatment but did not fully recover. She was again hospitalized in 1951 and 1952. On both occasions she improved in response to electrotonic treatment. Insulin treatment also was given in 1952. The improvement was short-lasting, however, and the complaints gradually became more pronounced, necessitating further hospitalization in March, 1953. The patient was admitted to the Rochester State Hospital on April 6, 1953. At that time she complained that people in some way were harming her through the electrical wires in any building where she happened to be. This caused her to have headaches and a severe burning pain in the eyes. She insisted that the FBI be notified, since she had previously reported the matter to that agency. She continuously kept both eyes covered with black cloth, even though the ophthalmologist assured her that there was nothing organically wrong with them. Between May 20, 1953, and July 1 of that year the patient had 15 electrotonic treatments. Mentally she improved, but she promptly relapsed when the intervals between treatments were lengthened. For this reason a selective prefrontal leukotomy was performed on July 14, 1953. Intracerebral electrographic studies were made before the operation was performed. On the basis of information derived from these studies it was decided to limit the cutting to the lower medial quadrants. She responded readily and was dismissed from the hospital as recovered on Aug. 17, 1953. On Aug. 28 she resumed her former position of secretary in a business establishment.

Case 2.—In 1945 a 31-year-old married woman began to have spells during which she would stare into space, cry out loudly, and complain that people were spying on her. She was admitted to a hospital and given electrotonic treatments. She improved temporarily, but further hospitalization and treatment became necessary in 1946, in 1947, and again in 1948. The response to treatment was essentially the same in each instance. In December, 1948, the patient became very disturbed, destructive, and violent. On one occasion she struck her husband with a bottle while she was riding with him in the family car. On another occasion she grabbed the steering wheel of the car when they were driving and at the same time tried to bite her husband, who was at the wheel. The patient was admitted to the Rochester State Hospital on Jan. 7, 1949. Mentally she was confused, and there was much blocking. She responded to electrotonic treatment but did not fully recover. She was home on two occasions but in each instance was returned to the hospital after a few months in essentially the same mental condition described on her first admission. A prefrontal leukotomy of the selective type was performed on Sept. 8, 1953. Preceding the operation intracerebral electrographic studies were made. As a result of these studies, it was decided to cut the medial half of the left frontal lobe and the lower medial quadrant of the right. The patient responded well to the operation and was dismissed from the hospital as recovered on Jan. 23, 1954. She is working as a saleslady and has made a good social adjustment in spite of an unsatisfactory home situation.

Case 3.—A single girl, 19 years of age, was admitted to the Rochester State Hospital on June 11, 1953. She was born prematurely and was said to have always been sensitive, nervous, and withdrawn. As a child she had frequent temper tantrums and had the habit of nail-biting. She repeated the first grade in school but completed the 12th grade in 1952. The onset of the mental illness was insidious. In December, 1952, the symptoms became more pronounced. The patient showed poor judgment in that she spent her money foolishly, would throw good clothing away, and would let herself be picked up by strangers. On admission to the hospital the patient was slow and preoccupied. When spoken to, she would hide her face in her hands and arms; she would not answer questions unless she was coaxed. Between June 17, 1953, and Nov. 4 of that year she received 26 electrotonic treatments. She gained a great deal in weight and improved much mentally. The improvement was not sustained. Soon the patient again became preoccupied and would laugh in a silly and inappropriate manner. A selective prefrontal leukotomy was performed on March 23, 1954. On the basis of information gained from intracerebral electrographic studies made before the leukotomy, it was decided to limit the cut to the lower medial quadrants. There was steady improvement after the operation, and she was dismissed on June 15, 1954, as much improved. Her social adjustment at the time of writing is good.

COMMENT

Observation of a larger number of patients over longer periods of time is necessary before a final evaluation can be made of this selective leukotomy. It can be stated, however, that so far the clinical results are better and the undesirable after-effects are fewer than they were after the more extensive types of leukotomy.

1520 E. Center St. (Dr. Petersen).

CLINICAL NOTES

EVALUATION OF A RAPID SERUM AMYLASE TEST

Michel Gilbert, M.D., Rochester, N. Y.

The purpose of this paper is to report our experience at the Strong Memorial Hospital with the rapid serum amylase test described by Fishman and Doubilet.[1]

METHOD

The amylase activity is estimated in Somogyi units by incubating a small amount of serum with a minute quantity of starch at 40 C (104 F) for five minutes. The residual starch, if any, is measured by the color changes produced by the addition of an iodine reagent. The test was found suitable for emergency clinical conditions, since the only equipment needed was a constant temperature water bath, a centrifuge, small test tubes, pipets, and three dropping bottles. The reagents, described in the original article, were simple to prepare and needed few precautions to maintain in suitable condition.

During the period of January to July, 1954, this test was employed in our surgical emergency ward in all cases of acute upper and midabdominal distress of doubtful etiology. The remaining serum was rechecked later by the Somogyi method. In the absence of correlation of the results, the Somogyi test was repeated in order to rule out an error in the latter method.

From the Department of Surgery, University of Rochester, Strong Memorial Hospital. Dr. Gilbert is now at the University Hospitals, Cleveland.

[1] Fishman, L., and Doubilet, H.: A Rapid Serum Amylase Test, J. A. M. A. 157:908 (March 12) 1955.

RESULTS

A total of 56 emergency tests were performed; however, 6 of these were not checked by the Somogyi method and thus had to be discarded from the series. Of the remaining 50 results, 3 did not correlate with the Somogyi method, an error of 6%. Of the 47 patients whose serum amylase levels were found to be correct, the range was as follows (see table): 4 patients (8.5%) had serum amylase levels greater than 500 mg. per 100 cc., 5 patients (10.5%) had serum amylase levels between 350 and 500 mg. per 100 cc. Thus, 9 patients (19%) out of the 47 had a definite elevation of their serum amylase. Eight patients (17%) had a serum amylase level between 200 and 350 mg. per 100 cc., and 30 patients (64%) had a normal serum amylase level (0 to 200 mg. per 100 cc.).

COMMENT

Pancreatitis, either primary or secondary to other pathology (e. g., posterior penetrating ulcer), is often difficult to diagnose clinically unless a serum amylase test is done during the acute phase. The results on the 47 patients with acute upper or midabdominal pain of unknown etiology seen in our emergency ward showed that 9 patients (19%) had a definitely elevated serum amylase. These nine patients were given a diagnosis of acute pancreatitis and were treated by active nonoperative measures such as nasogastric suction, parasympatholytic agents, and infusions. Further tests such as gastrointestinal and gallbladder series were performed later to rule out the possibility of pancreatitis being secondary to other pathology. Thus, a little less than one out of five patients seen in our emergency ward with upper or midabdominal distress of doubtful etiology had pancreatic involvement.

Range of Serum Amylase Levels (in Somogyi Units) in Forty-Seven Patients with Acute Upper or Midabdominal Pain of Unknown Etiology

Amylase Range	Patients No.	Patients %
Elevated		
> 500 mg. per 100 cc.	4	8.5
350 to 500 mg. per 100 cc.	5	10.5
Doubtful range		
200 to 350 mg. per 100 cc.	8	17
Normal range		
0 to 200 mg. per 100 cc.	30	64

The test developed by Fishman and Doubilet was found to have a 94% accuracy and did not require any expensive or intricate equipment or trained personnel. Determination of the amylase level required only five minutes after the blood was clotted. Although only the range (e. g., 0 to 200, 200 to 350, 350 to 500, 500 to 700, and greater than 700 mg. per 100 cc.) and not the exact amylase content was given, this sufficed for emergency use. A more exact amylase concentration could be determined later with Somogyi method. Another advantage of this test was the small amount of serum needed (e. g., 0.1 cc. and 0.05 cc.). For example, the amylase content of even a few drops of fluid obtained by paracentesis could be easily determined. The color and end-points were found to be sharp and their interpretation easily made (e. g., blue to green, 0 to 200 mg. per 100 cc.; light green or amber, 200 to 350 mg. per 100 cc.; yellow, 350 mg. per 100 cc. or higher). If a yellow color was obtained with the use of 0.1 cc. serum, then another tube was set up with only 0.05 cc. serum and the results interpreted as follows: blue to green, 350 to 500 mg. per 100 cc.; orange to amber, 500 to 700 mg. per 100 cc.; yellow, 700 mg. per 100 cc.; or higher. The only difficulty we encountered was to remember that the starch solution had to be made up every three weeks and kept refrigerated when not in use. It was found that two of our three errors were due to the use of a starch solution older than three weeks. Since that time, by using a starch solution no older than three weeks, 24 consecutive serum amylase determinations have been made without error as determined by comparisons with the Somogyi method. It was also found necessary to change the iodine reagent every four months in order to have sharp color end-points.

SUMMARY

The rapid serum amylase test described by Fishman and Doubilet was found to be of value as an emergency procedure in the differential diagnosis of acute upper abdominal conditions and has been adopted at our hospital for this use.

2065 Adelbert Rd.

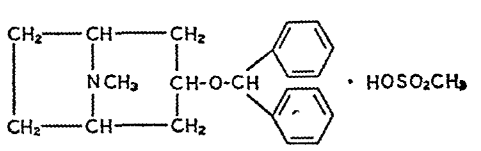
COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

Monographs and supplemental statements on drugs that appear in this column have been authorized by the Council for publication and inclusion in New and Nonofficial Remedies. They are based upon the evaluation of available scientific data and reports of investigations.

R. T. Stormont, M.D., *Secretary.*

Benztropine Methanesulfonate.—$C_{21}H_{25}NO.CH_4O_3S$.—M.W. 403.52.—3-Diphenylmethoxytropane methanesulfonate. — Tropane benzohydryl ether methanesulfonate.—The structural formula of benztropine methanesulfonate may be represented as follows:



Actions and Uses.—Benztropine methanesulfonate, a parasympatholytic agent that comprises chemical features of both atropine and certain antihistiminic drugs, exhibits anticholinergic, antihistaminic, and local anesthetic properties. Its anticholinergic effect is useful in the symptomatic treatment of all forms of paralysis agitans. The therapeutic significance of its antihistaminic and local anesthetic actions in that disease or its over-all usefulness for other conditions has not been established. The action of benztropine methanesulfonate is prolonged; its anticholinergic effect is approximately equivalent to that of atropine sulfate; its antihistaminic activity is similar to that of pyrilamine maleate. Benztropine may be associated with anticholinergic-like side-reactions as well as the characteristic sedative and other side-effects of the antihistaminic drugs. Benztropine methanesulfonate does not produce central stimulation.

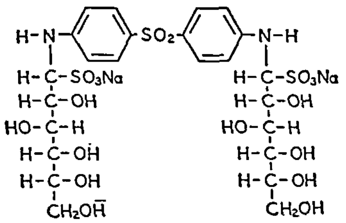
In paralysis agitans, benztropine methanesulfonate is chiefly effective for the relief of tremor and rigidity. It also may ameliorate other troublesome symptoms such as sialorrhea, drooling, mask-like facies, oculogyric crises, and pain secondary to cramping and muscle spasm. It may be employed alone or in conjunction with certain other drugs of established value in paralysis agitans, depending upon its effectiveness in individual patients. Aged patients who do not tolerate cerebral-exciting agents may respond to benztropine methanesulfonate.

Therapeutic doses of benztropine methanesulfonate may cause such anticholinergic-like side-effects as dryness of the mouth, blurred vision, nausea, and nervousness. Unless these effects are severe or are accompanied by vomiting or difficulty in swallowing or speaking, they usually can be disregarded or the dosage reduced slightly. In excessive doses for a given patient, the drug may cause weakness and inability to move particular muscle groups, which require adjustment in dosage. Difficulty in urination may be encountered occasionally, and the possibility of producing or aggravating glaucoma resulting from the mydriatic effect of the drug should be borne in mind. In the event of severe reactions such as mental confusion, excitement, or vomiting, the drug should be withdrawn temporarily and then resumed at a lower dosage level. Patients exhibiting a sedative side-effect, which may be associated with the accompanying antihistaminic action, should not be permitted to operate machinery or appliances requiring alert attention.

Dosage.—Benztropine methanesulfonate is administered orally. The usual dosage in paralysis agitans is 1 to 2 mg. daily, with a range of 0.5 to 6 mg. Patients should be started on a single daily dose of 0.5 to 1 mg. with increments of 0.5 mg. every few days until the optimal tolerated dosage is reached. The increments can be added as a separate 0.5 mg. dose so that doses of 0.5 mg., or multiples thereof, one to four times daily may be administered. Younger patients with post-encephalitic paralysis agitans may tolerate larger initial doses and, for maintenance therapy, may require 2 mg. two or three times daily. Older patients may be controlled by 1 mg. twice daily. Some patients may receive the greatest benefit with a single 2 mg. dose at bedtime, which is often sufficient to control symptoms for 24 hours; a single total daily dose administered at another time also may be effective for some patients. As with other therapy in paralysis agitans, the approach should be one of individual adjustment of dosage to obtain maximal symptomatic improvement with a minimum of undesired effects. When the drug is given to replace or supplement other drugs, the change should be gradual, with the dosage of the previous medication being reduced as the dosage for benztropine is increased.

Sharp & Dohme, Division of Merck & Co., Inc., cooperated by furnishing scientific data to aid in the evaluation of benztropine methanesulfonate.

Glucosulfone Sodium.—$C_{24}H_{34}N_2Na_2O_{18}S_3$.—M.W. 780.70. — *p,p'*-Diaminodiphenylsulfone-N,N'-di-(dextrose sodium sulfonate).—Glucosulfone sodium is available only in a mixture containing about 88.5% of anhydrous *p,p'*-diaminodiphenylsulfone-N,N'-di-(dextrose sodium sulfonate) and about 11.5% of dextrose. The structural formula of the active component may be represented as follows:



Actions and Uses.—Glucosulfone sodium is a chemotherapeutic agent effective against Mycobacterium. It is tolerated far better parenterally than orally, possibly because of liberation of the parent compound, *p,p'*-diaminodiphenylsulfone, by action of gastric acid.

The drug is effective in the treatment of leprosy. Against tuberculosis the results have been less dramatic, although beneficial effects have been reported. Streptomycin is much more effective in tuberculosis than is glucosulfone sodium, but, when the two are given together, development of resistance to streptomycin is delayed; hence in tuberculosis glucosulfone sodium is used principally as an adjunct to streptomycin therapy.

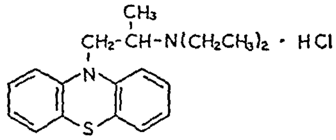
The most important untoward reaction to parenteral administration of glucosulfone sodium is the development of a hemolytic anemia. This usually corrects itself after discontinuance of the drug. Other toxic effects include nausea, vomiting, cyanosis, rashes, and mental confusion. These reactions may occur in about 10% of patients.

Dosage.—In the treatment of leprosy, the intravenous dose is 2 to 5 gm. It is administered daily for six consecutive days, omitted on the seventh day, and administered daily for the next six days. Treatment is interrupted for one week at the conclusion of each two week period. This schedule should be maintained for many months, the precise duration depending on the patient's response. In the treatment of tuberculosis, glucosulfone sodium may be used according to the same dosage schedule in conjunction with the usual course of streptomycin therapy.

Patients receiving glucosulfone sodium for prolonged periods should be under constant supervision. Frequent estimations of hemoglobin should be made and the drug stopped if any signs of anemia appear.

Parke, Davis & Company cooperated by furnishing scientific data to aid in the evaluation of glucosulfone sodium.

Ethopropazine Hydrochloride.—$C_{19}H_{24}N_2S.HCl$.—M.W. 348.93. — 10-(2-Diethylaminopropyl)phenothiazine hydrochloride.—The structural formula of ethopropazine hydrochloride may be represented as follows:



Actions and Uses.—Ethopropazine hydrochloride, a phenothiazine derivative, is a parasympatholytic agent that exhibits a ganglionic blocking action comparable to that of nicotine but that produces a sufficient depression of the central nervous system to block the convulsant activity characteristic of nicotine. Intense and prolonged mydriasis is produced by parenteral injection in experimental animals. The drug also antagonizes certain acetylcholine effects such as bradycardia, hyperperistalsis, and salivation but, unlike atropine, does not inhibit the hypotensive effects of acetylcholine. Except at high dosage levels, it has only a minor effect on blood pressure, and its adrenolytic activity is somewhat weak and variable. Small doses stimulate respiration, but larger doses depress respiration. The drug also exhibits some antihistamine activity.

Ethopropazine hydrochloride is useful in the symptomatic treatment of parkinsonism, especially for controlling rigidity. It also exerts a favorable influence upon spasm, tremor, sialorrhea, and oculogyric crises and festination in that disease and may be employed in conjunction with other appropriate atropine-like drugs when these are indicated to supplement the action of ethopropazine, such as in refractory oculogyric crises. The role of its antihistaminic action in parkinsonism has not been established.

Ethopropazine hydrochloride commonly produces side-effects, but these are rarely severe. High dosage may cause temporary hypotension. With therapeutic doses drowsiness is the most frequent side-effect and dizziness also may occur. As dosage is increased, mouth dryness, blurring of vision, lassitude, sense of heaviness in the limbs, and, less commonly, epigastric discomfort also may appear. Because of its mydriatic action, ethopropazine theoretically should not be used in patients with glaucoma. Administration of the drug over long periods has not been followed by any blood dyscrasias or other signs of chronic toxicity.

Dosage.—Ethopropazine hydrochloride is administered orally. Optimal effective dosage is determined by individual response and may change with progression of the disease. Patients with symptoms of mild to moderate severity frequently respond to a daily dosage of 0.1 to 0.2 gm., preferably administered in divided doses to provide a smooth, sustained effect of the drug. Severe symptoms may require gradual increase in the daily dosage to 0.5 or 0.6 gm. Daily dosage as high as 1 gm. has been employed without ill-effects, but it is seldom necessary to exceed a total of 0.7 gm. daily. Therapy is usually initiated with a dose of 10 mg. four times daily. This is increased 10 mg. per dose every two or three days until a dose level of 50 mg. four times daily is reached at the end of the second week of therapy. Further increments may be added as necessary so as to reach an optimal level within three weeks of therapy. In some patients a fifth dose at bedtime may be desirable or the morning dose may be larger than the subsequent doses for the day. When used to supplement or supplant other medication, the drug is added to the existing regimen by administering initial doses and gradual increments as stated previously for two weeks; then it is continued while the original medication is gradually reduced. It is then stabilized at a lower level or is eventually discontinued. Complete transition usually requires a period of about six weeks; replacement therapy should not be substituted suddenly.

With the occurrence of distressing side-effects, lowering of dosage may become necessary, but those effects encountered during initial stages of therapy usually disappear with continued medication. Unless uncomfortable side-effects are unusually severe, it is rarely necessary to discontinue therapy.

Warner-Chilcott Laboratories, Division of Warner-Hudnut, Inc., cooperated by furnishing scientific data to aid in the evaluation of ethopropazine hydrochloride.

Fibrinogen (Human).—Fibrinogen is a protein essential for blood coagulation. It is prepared by alcohol fractionation from human plasma collected and prepared in accordance with the regulations of the National Institutes of Health.

Actions and Uses.—Fibrinogen (human) is indicated for certain extensive surgical procedures and for restoring plasma fibrinogen levels to normal as an adjunct in treating hemorrhagic complications caused by acute afibrinogenemia. This latter condition often accompanies premature separation of the placenta (abruptio placentae). It is also used in the prevention of hemorrhagic episodes resulting from congenital or acquired chronic hypofibrinogenemia. Although the risk of transmitting serum hepatitis is probably greater with fibrinogen (human) than with whole blood, the amount of fibrinogen that can be supplied by whole blood transfusion is inadequate to restore fibrinogen levels in acute afibrinogenemia. Fibrinogen (human) should not displace the use of whole blood when the latter is indicated to replace the loss of formed elements or other components arising from the hemorrhagic complications of fibrinogen deficiency.

In the employment of fibrinogen (human) the physician should weigh very carefully the hazard of transmitting the virus of serum hepatitis against the danger of hemorrhagic complications in which it may be lifesaving. It should not be employed in the absence of adequate blood coagulation studies and determination of plasma fibrinogen levels, except in emergencies when facilities for performing these procedures are not available. A plasma fibrinogen level of less than 50 mg. per 100 cc. is considered critically low; levels below 100 mg. per 100 cc. may indicate the need for fibrinogen, but, in chronic hypofibrinogenemia, low levels may be encountered without frank hemorrhage.

Dosage.—Fibrinogen (human) is administered intravenously after reconstitution of a dried preparation with water for injection; 1 gm. of dried fibrinogen (human) is dissolved in 50 cc. of pyrogen-free sterile distilled water. The dried product should be stored at 2 to 10 C. It should be administered within one hour after reconstitution. In acute afibrinogenemia associated with premature separation of the placenta, the usual dosage is 2 to 6 gm. (100 to 300 cc.), depending upon the response of the patient. In other afibrinogenemic or hypofibrinogenemic conditions, the dosage should be adjusted according to the clinical observations and initial plasma fibrinogen levels. Whenever feasible, the latter are invaluable as an aid for determining the adequacy of the dosage.

Cutter Laboratories cooperated by furnishing scientific data to aid in the evaluation of fibrinogen (human).

COUNCIL ON FOODS AND NUTRITION

The following article adopted by the Council is published to explain in general terms the Council's new method of operation. EUGENE H. STEVENSON, M.S. *Acting Secretary.*

NEW COUNCIL PROGRAM

One of the responsibilities of the medical profession is to assist in the attainment and maintenance of a high level of nutritional health in our nation. The American Medical Association can best meet this responsibility in the following manner: (1) by formulating desirable nutritional standards for foods and expressing opinions regarding their wholesomeness and usefulness, emphasizing those foods that have public health significance or are important in the feeding of special population groups, such as infants, invalids, and others; (2) by indicating what it believes to be desirable criteria for the formulation of accurate and informative advertising copy pertaining to foods and nutrition; and (3) by reporting to the profession and educating the public on all aspects of nutrition through the dissemination of accurate nutritional information.

Therefore, the activities of the Council on Foods and Nutrition of the American Medical Association shall be directed toward these three objectives, as described below.

FOOD STANDARDS

Desirable standards for certain classes of foods will be developed and periodically reviewed and revised as needed.

In addition to standards for special purpose foods, standards for general purpose foods of public health importance, such as vitamin D milk, iodized salt, and citrus juices, will be developed. As other properties of foods are subject to regulation by the Food and Drug Administration and by the laws of individual states, the standards proposed by the Council will be directed toward the improvement of the nutritional aspects of foods.

These standards will be made available to the medical profession and others interested through periodic reports in THE JOURNAL and elsewhere.

The Council may publish in THE JOURNAL informational reports on the use of the Council standards and on the extent to which labeling laws protect the public from false or incorrect claims and the misuse of Council standards.

The Council proposes to determine from time to time by independent evaluation whether products claimed to meet Council standards actually do so and to call incidents of mislabeling to the attention of the appropriate authorities or the profession as indicated.

FOOD ADVERTISING

To guide those concerned with the production and marketing of nutritionally better foods, the Council is revising its publication, "General Decisions on Foods and Food Advertising." This includes statements and decisions of the Council on food composition, food advertising, and special food questions relating to public health. The Council believes that these will serve as valuable aids in the composition of accurate and informative advertising copy.

Educational food advertising (informative advertising dealing with classes of foods without reference to specific brands, processors, or distributors) will continue to be an interest of the Council. A program will be conducted as in the past except that a seal will not be granted. When an educational advertisement has been reviewed by the Council and found to be consistent with current authoritative medical opinion, permission will be granted to use a statement indicating this fact.

NUTRITION EDUCATION

The Council, since its inception, has recognized its responsibility of interpreting the findings of nutritional research and disseminating accurate nutritional information to the physicians and the public. Expansion of this activity has been under study for some time by a Council committee and has been carefully explored in discussions of the full Council. With the discontinuation of the seal-acceptance program, the Council can now devote more of its energies in this direction.

The program of nutrition education will utilize a variety of means of communication. It will provide a source of accurate information for presentation to the profession and the public in national and local programs. It will sponsor conferences on a high professional level on topics of current interest in the field of nutrition, such as the recent Symposium on Inorganic Elements in Human Nutrition. It will prepare educational material for medical publications and when requested check for accuracy suitable news releases for the public press. The program will provide for Council-sponsored articles for presentation in THE JOURNAL and other Association publications.

The program of nutrition education will provide nutrition information to other interested organizations at national, state, and local levels through corresponding medical channels. The presentation of nutrition information in medical schools can be facilitated greatly by this program.

THE JOURNAL
OF THE AMERICAN MEDICAL ASSOCIATION
Edited Under the Direction of the Board of Trustees

Editor and Managing Publisher . . AUSTIN SMITH, M.D.
Associate Editor . . . . JOHNSON F. HAMMOND, M.D.
Editor for Medical Literature Abstracts . GEORGE HALPERIN, M.D.
Assistant Editor . . . . WAYNE G. BRANDSTADT, M.D.

Subscription price . . Fifteen dollars per annum in advance
Cable Address . . . . "Medic, Chicago"

PLACEBOS

Most dictionary definitions of a placebo are too restrictive for modern usage. Hofling [1] defines a placebo as a "therapeutic measure which is administered largely or entirely for a psychologic effect not inherent in its physical or pharmacologic properties." This definition does not limit usage to drugs. It is reasonable, for example, to speak of a heat treatment as having a placebo effect. Leslie [2] has classified placebos as pure when the effect is due entirely to their psychological effect and as impure when they contain a substance of some inherent pharmacological activity not relevant to the immediate problem. The patient's faith in his physician adds great psychic power to the efficacy of any therapeutic measure and makes the placebo an important adjunct to treatment. What constitutes a good placebo cannot be specifically stated, because what may be a good one for one patient may not be so for another even though he has a similar condition. However, anything that is so used must be inexpensive and nontoxic.[3]

Leslie defends the use of placebos on ethical grounds when they are used for the welfare of the patient. Sometimes a placebo may be needed as a stopgap to relieve distressing symptoms in a patient who must undergo prolonged diagnostic tests. There is always a danger in this situation that if the placebo works too well the physician will relax his efforts and miss a chance to treat disease in an early stage. An injection of sterile water for the patient after operation who is being weaned away from opiates may aid in preventing habituation. Surely it is as legitimate to give placebos for a condition that has been carefully diagnosed as it is to give them for one for which no scientific treatment exists. To tell a patient with such a condition that there is no help for him would be cruel and negligent. In dealing with patients whose dependent need for emotional security is great the physician may use placebos, not to deceive, but as an added emotional link with the patient. On the other hand, to give a placebo in order to quiet a patient at any cost indicates a negative approach to the real problem. It is poor practice to give a therapeutic agent as opposed to a pure placebo on the assumption that it can do no harm and may do some good. Vitamins are often given in this spirit, and if the patient appears to benefit the physician may come to think the improvement has been due to a specific effect of the placebo and may be tempted to use the same drug in treating a patient for whom a more specific treatment is available. To give vitamins to a well-nourished patient or injections of liver extract to one who is not anemic bespeaks an uncritical and confused state of mind in a physician.

A placebo should not be given when the physician-patient relationship is in jeopardy and not unless the physician has examined the indications for its use even more carefully than if he were to order specific therapy. Leslie gives many helpful suggestions regarding the technique of giving placebos. No placebo should be given for a prolonged period. If the placebo is in tablet form it should not look like aspirin in color, shape, or size. When withdrawing a placebo on which a patient has become dependent it will not help him to be told that it was only a placebo.

A special indication for the use of placebos is the double-blind test of the efficacy of a new drug, in which neither the physician nor the patient knows whether the patient is getting an active drug or a placebo. This sort of testing should keep the observations objective, but patients known as placebo-reactors, those who cannot discriminate clearly between active and inert drugs, have been found to exist.[4] A large number of such reactors in the control series would tend to decrease the difference between the results obtained with a potent and valuable drug and the controls, possibly to the point of indicating that the new drug was worthless. On the other hand, the optimal dosage of a drug may be underestimated if a large number of placebo-reactors whose symptoms are easily relieved by any medication have been included in the test group. This hazard sometimes may be overcome, if conditions permit, by making the patient his own control by giving drug A one time and drug B another time, one of these being the placebo and the other the drug being tested. If the symptoms of a chronic disease are being treated the test group and control group can be reversed at stated intervals, but if both groups contain many placebo-reactors the results may still be misleading. A complicating feature of this problem is that placebo-reactors are not consistent in their response. Studies are being conducted to try to enable experimenters to recognize and weed out placebo-reactors. This promises to be no easy task. Furthermore, it is difficult to evaluate the effect of drugs on a disease in which a large psychosomatic factor is present, such as peptic ulcer, hypertension, migraine, and scleroderma.

There are many legitimate uses for placebos, but physicians should use them wisely and avoid using them for any but the most carefully considered indications.

---

1. Hofling, C. K.: The Place of Placebos in Medical Practice, GP **11**: 103-107 (June) 1955.
2. Leslie, A.: Ethics and Practice of Placebo Therapy, Am. J. Med. **16**: 854-862 (June) 1954.
3. Carter, A. B.: The Placebo: Its Use and Abuse, Lancet **2**:823 (Oct. 17) 1953.
4. Lasagna, L.: Placebos, Scient. Am. **193**: 68-71 (Aug.) 1955. Lasagna, L.; Mosteller, F.; von Felsinger, J. M., and Beecher, H. K.: A Study of the Placebo Response, Am. J. Med. **16**: 770-779 (June) 1954.

AWARD FOR A. M. A. COMMITTEES

The American Medical Association, through its Committee on Pesticides and Committee on Toxicology, has been awarded a national home safety Certificate of Commendation for exceptional public service in the prevention of home accidents during the year 1954-1955 by the National Safety Council. The award was bestowed for the committees' educational efforts to reduce accidental poisoning. The Committee on Pesticides studies the dangers involved in the use of agricultural chemicals, while the Committee on Toxicology investigates the health problems of household and industrial chemical products. The two committees conduct educational and research programs on two fronts: first, to increase public understanding of the proper use of chemicals; and, second, to provide guidance to the medical profession on the many health questions that are associated with the use of chemicals.

The older of these two groups is the Committee on Pesticides, which was formed in January, 1950. As part of its education program, it has prepared 20 interpretative statements reviewing the medical and public health aspects of agricultural chemicals. These have had worldwide distribution and have been translated into several foreign languages. An exhibit on accidental poisoning and a radio transcription on the same theme have been in constant demand by medical societies and lay health groups. The Committee on Pesticides has also encouraged greater consideration of economic poisons in the curriculums of medical and pharmacy schools by providing outlines of information, organizing symposiums, and arranging for experimental studies of pharmacologically interesting pesticidal compounds.

The Committee on Toxicology was organized more recently. It was set up early this year as a result of a House of Delegates resolution calling for the dissemination of information on potentially poisonous household chemicals. The Committee is studying means and recommending measures to decrease the risks of accidental poisoning. To this end, it has sponsored a conference on the health problems of household chemicals and published or prepared for publication several reports. In cooperation with the Committee on Pesticides it is presently organizing a symposium on the health hazards of chemicals for the annual meeting of the American Association for the Advancement of Science.

The Committee on Pesticides and the Committee on Toxicology are to be commended for their accomplishments and deserve continued support in their activities. They and other organizations similarly engaged in the prevention of poisoning and other accidents need the active assistance of all physicians if further gains are to be made.

FARM/CITY WEEK

In his State of the Union Message in 1954 President Eisenhower said, "The well-being of our 160 million people demands a stable and prosperous agriculture. Conversely, every farmer knows he cannot prosper unless all America prospers." Acknowledging this counsel, the American Medical Association, together with 400 other organizations, is participating this week in the first observance of Farm/City Week, October 23-29. Under the sponsorship of the Farm-City Conference, an informal alliance of leaders in industry, agriculture, and the professions, the observance is dedicated to the creation of better understanding between rural and urban dwellers. Specifically, its function is to provide demonstrations of the civic, social, and economic bonds between city and farm neighbors that characterize our national vigor.

Kiwanis International and its member clubs are spearheading this program, which is being formally launched today (October 22) by the Secretary of Agriculture Ezra Taft Benson at the Department's Agricultural Research Center in Beltsville, Md. The presence of both Secretary of Labor Mitchell and Secretary of Commerce Weeks is expected to give added momentum to the observances that are to be held throughout the United States during the ensuing days of this first Farm/City Week.

Kiwanis clubs have been requested to seek the support and manpower of medical societies in formulating and effecting these community programs. Farm/City Week is, of course, a nonpartisan public service venture, and it presents an unexcelled opportunity for medical societies to exercise civic leadership, dramatize medicine's services, win support of community health programs, and enjoy the reciprocal benefits of a cooperative public relations program.

Medicine's year-round programs covering nutrition, sanitation, physician-procurement, preventive medicine, child welfare, mental health, vocational guidance, and budgeting for medical expenses are but a few topics that are pertinent to the medical society's participation in Farm/City Week. Newspapers, radio, and television are among the communication mediums eager to receive information and to report these activities that are conducted in the interest of public health. Tours of medical facilities by civic groups and students, addresses, and open houses are also effective means of calling attention to the services of the local medical society. Because organized medicine is a recognized integrant of both rural and urban communities, doctors are urged to participate in Farm/City Week observance and thereby indicate medicine's interest in the welfare of all.

ORGANIZATION SECTION

FEDERAL MEDICAL LEGISLATION

First Session, 84th Congress

Surplus Property for Civil Defense

Senator Humphrey (D., Minn.), in S.1527, and Congressman Brooks (D., Texas), in H. R. 7227, would authorize the distribution of federal surplus property for civil defense purposes. These bills were referred to the respective government operations committees.

Educational Expenses for Higher Education

Congressman Jackson (R., Calif.), in H. R. 4444, would amend the Internal Revenue Code to provide a partial tax credit for income tax purposes for payments to educational institutions for the cost of education above the 12th grade. Credit would be given for 30% of payments, with a maximum credit of $450 for the education of each person. This measure was referred to the Ways and Means Committee.

Medical Deductions for Income Tax Purposes

Congressman Hyde (R., Md.), in H. R. 5336, would remove the 3% limitation on deductions for income tax purposes on the amounts paid for medical and dental expenses and would remove the maximum limitation on allowable medical expenses. Where the taxpayer or spouse is 65 years of age or older, the 1% limitation for drugs and medicine before deductions are calculated would also be removed. This measure was referred to the Ways and Means Committee.

Twenty Year Permanent and Total Disability

Congressman Wilson (R., Ind.), in H. R. 6447, would amend the veterans regulations to liberalize the statute used by the Veterans Administration in calculating the 20 year period following which disability rating may not be reduced. The bill would also restore disability rating that has been reduced under the present regulations, except when it could be shown that such a rating was based on fraud. Congressman Wilson proposes that the date the disability began as certified by the Veterans Administration be used instead of the actual date the determination was made, as is the present practice. This bill was referred to the Veterans' Affairs Committee.

Free Poliomyelitis Vaccine

Congressman Burnside (D., W. Va.), in H. R. 6973, provides an unlimited appropriation for poliomyelitis vaccination and would include free transportation in the event mass inoculation would take place after the close of school. This measure was referred to the Interstate and Foreign Commerce Committee. Congressman Sullivan (D., Mo.), in H. R. 7206, would authorize unlimited appropriations to permit the National Foundation for Infantile Paralysis to conduct vaccination against poliomyelitis of children under 20 years of age without any means test. The foundation would be given authority to make regulations for use of the vaccine, including allocation, distribution, and establishment of priorities. This bill was referred to the Committee on Interstate and Foreign Commerce.

Medical Advisory Committee on Alcoholism

Congressman Huddleston (D., Ala.), in H. R. 7254, would establish a medical advisory committee on alcoholism in the Department of Health, Education, and Welfare: "(1) to advise and cooperate with the United States Public Health Service (and particularly with its Mental Hygiene Division) in promoting education on alcoholism throughout the departments and agencies of the Federal Government; (2) to promote education on alcoholism throughout the several States, acting primarily through the State departments of health; (3) to advise on the establishment of clinics for the care of alcoholics; (4) to advise the departments and agencies of the Federal Government on the establishment of facilities for the care of alcoholics at various stages of the disease, and particularly to advise with respect to the different types of medical approach which are required for rehabilitation at the different stages; (5) to advise educational bodies on medical matters connected with alcoholism, and to provide for material for inclusion in the syllabus of the various educational institutions; and (6) to provide advice, from a medical, educational, community, and socio-logical point of view, regarding the care, treatment, and prevention of alcoholism throughout the country." Two-thirds of the members of the committee must be physicians licensed to practice medicine. This measure is identical with H. R. 3937 by Radwan (R., N. Y.). It was referred to the Committee on Interstate and Foreign Commerce.

Cash Disability Payments under Social Security

A series of bills were introduced to lower the age for cash disability benefit payments to those under social security who have been disabled at an earlier date than the age 65 set for those retired under the Old-Age and Survivors Insurance program. The proposals in these bills would make payments available at an earlier age, generally after six months of disability. There are minor differences in these bills: S. 2387 (Humphrey; D., Minn.), H. R. 6655 (Reuss; D., Wis.), H. R. 6580 (Karsten; D., Mo.), H. R. 6812 (Johnson; R., Wis.), H. R. 6935 (Alexander; D., N. C.), H. R. 6920 (Jennings; D., Va.), H. R. 6902 (Dorn; R., N. Y.), S.1639 (Long; D., La.), S.2293 (Kennedy; D., Mass.), H. R. 3610 (Roberts; D., Ala.), H. R. 4489 (Siler; R., Ky.), H. R. 6415 (Perkins; D., Ky.), H. R. 6898 (Canfield; R., N. J.), H. R. 7208 (Fino; R., N. Y.), and H. R. 7246 (Ashmore; D., S. C.). A number of these bills are identical with measures previously introduced. The Senate bills were referred to the Finance Committee and the House measures to the Ways and Means Committee.

From the Washington Office of the American Medical Association.

NEW DAYTIME TELEVISION PROGRAM

The American Medical Association is cooperating with a filmed television program on infant care that started the week of Oct. 16 on local stations throughout the country. Titled "It's Baby Time," the daytime program will feature W. W. Bauer, M.D., Director of the A. M. A.'s Bureau of Health Education, as medical narrator and Jane Warren, R.N., as demonstrator of nursing procedures. The 15-minute feature will take up common problems in the development and feeding of healthy babies. Since it is being placed on individual television stations and not through an established network, "It's Baby Time" will be seen on a schedule that varies from community to community. Sponsor of the show is Libby Baby Foods.

Here is the station line-up for the new program: New York, WABC, Tuesday and Thursday, 11:45 a. m.; Chicago, WGN-TV, Wednesday and Friday, 1 p. m.; St. Louis, KSD-TV, Tuesday and Thursday, 8:30 a. m.; Pittsburgh, KDKA-TV, Tuesday and Thursday, 2 p. m.; Nashville, Tenn., WSM-TV, Thursday and Friday, 12:15 p. m.; Milwaukee, WISN-TV, Thursday and Friday, 1 p. m.; Minneapolis-St. Paul, KSTP-TV, Tuesday and Thursday, 11:45 a. m.; Norfolk, Va., WTAR-TV, Thursday, 1 p. m.; Tampa-St. Petersburg, Fla., WFLA-TV, Thursday, 2:15 p. m.; Kansas City, Mo., KCMO-TV, Tuesday, 12 noon; El Paso, Texas, KROD-TV, Thursday, 11 a. m.; Louisville, Ky., WHAS-TV, Thursday, 12 noon; Mobile, Ala., WKRG-TV, Friday, 12:45 p. m.; Seattle, KING-TV, Thursday, 12:30 p. m.; and Miami, WTVJ, Monday, 9:45 a. m.

PLANS FOR RURAL HEALTH CONFERENCE

The A. M. A. Council on Rural Health met Sept. 9-10 with its advisory committee composed of representatives of leading agricultural organizations. The joint group reviewed policies and made plans for the ensuing year's activities. The advisory committee also assisted the Council in planning for the 11th National Conference on Rural Health that is to be held at the Multnomah Hotel, Portland, Ore., March 8-10. The theme will be "Your Doctor and You." The Thursday morning session, March 8, will be devoted to an informal session to study and discuss doctors' participation in community activities. The conference will take up such subjects as the family and the physician, mental health, problems of the aging, health insurance, and other health topics of interest to rural groups.

REVISED LIST OF FILMS

A revised list of films available through the A. M. A. motion picture library has been prepared, and copies are available on request from the Committee on Motion Pictures and Medical Television of the American Medical Association. This catalogue lists 83 medical films suitable for showing to medical societies, hospital staff meetings, and other scientific groups. The catalogue also includes 36 health films of interest to physicians who may be called upon to speak before lay audiences such as service organizations and Parent-Teacher Associations.

COUNCIL ON MEDICAL SERVICE

A STUDY OF MATERNAL AND CHILD CARE IN THE UNITED STATES

This is section B of the third in a series of articles by the Committee on Maternal and Child Care of the Council on Medical Service reviewing state and local medical care programs for mothers and children. Section A, on Nebraska as a whole, appeared in The Journal, *June 25, 1955, page 691. This section is devoted to maternal and child health in the communities of Lincoln and Omaha.*

Over 26% of the people of Nebraska live in the two cities of Lincoln and Omaha, 28% of the resident births in Nebraska are in these two cities, and 35% of the total births in Nebraska occur in their hospitals. It is of interest in this study, then, to examine rather closely statistics and descriptive data relative to maternal and child health in both cities with a view to correlating them with statewide statistics and factors within the metropolitan and rural areas that may have a part in the total improvement of maternal and child health in Nebraska.

Table 1.—*1953 Hospital Statistics for Lincoln*

Births		
Total infants delivered in the 3 hospitals of Lincoln		2,974
No. of stillbirths (fetal deaths reported over 20 weeks' gestation)	39 (1.3%)	
Total live births		2,935
Total live-born premature infants	135 (4.6%)	
Deaths		
Total maternal deaths		0
Total neonatal deaths		56 (19.0/1,000 live births)
Neonatal deaths due to or associated with prematurity	40 (71.4%)	
Neonatal deaths—other causes	16 (28.6%)	

MATERNAL AND CHILD HEALTH IN LINCOLN

Statistics.—According to statistics supplied by the Lincoln-Lancaster County Health Department, the city of Lincoln, with a population of 98,884 (1950 census), had 2,504 resident births in 1952 including 46 registered fetal deaths (stillbirths). Two maternal deaths occurred in 1952. Resident infant deaths in Lincoln totaled 48 (19.5 per 1,000 live births) in 1952. This represents an infant mortality rate of 17% less than the state as a whole and 32% less than the United States average. In 1953 two of the three hospitals of Lincoln had records of 237 previable fetal deaths (under 500 gm. or less than 20 weeks' gestation). These early fetal deaths are not reported as stillbirths, in accord with the state health department's definition of a stillbirth, and, therefore, many hospitals do not keep complete records. The combined rate of such early fetal deaths (abortions or miscarriages) for the two hospitals is 99.2 per 1,000 live births (exclusive of regularly reported stillbirths—so-called viable sized fetal deaths).

Committee Members are: W. L. Crawford, M.D., chairman, Rockford, Ill.; R. B. Chrisman Jr., M.D., Miami, Fla.; Philip S. Barba, M.D., Philadelphia; Harold S. Morgan, M.D., Lincoln, Neb.; J. L. Reichert, M.D., Chicago; Garland D. Murphy, M.D., El Dorado, Ark.; Howard A. Nelson, M.D., Greenwood, Miss.; and Donald A. Dukelow, M.D., consultant, Chicago.

TABLE 2.—*Age at Death in Hospital of Infants Born in Lincoln Hospitals Who Died in the Neonatal Period, by Birth Weight (1953)*

	No. of Neonatal Deaths by Completed Days of Age at Death					
Birth Weight, Gm.	Total	Under 1 Day (Under 24 Hr.)	1 Day (24-47 Hr.)	2 to 6 Days (48-167 Hr.)	7 to Under 28 Days	Age Unknown
500 or less	2	2	..	..	..	..
501-1,000	9	9	..	..	..	..
1,001-1,500	9	5	1	3	..	..
1,501-2,000	13	7	1	5	..	..
2,001-2,500	2	..	1	1	..	..
Premature, but weight unknown	5	..	..	..	..	5
Total, 2,500 or less	40	23	3	9	..	5
2,501-3,000	5	1	2	2	..	..
3,001-3,500	8	3	..	4	1	..
3,501-4,000	1	..	..	1	..	..
4,001-4,500	2	1	..	..	1	..
4,501-5,000	..	..	..	..	..	..
5,001 or more	..	..	..	..	..	..
Birth weight unknown	..	..	..	..	..	..
Total, 2,501 or more	16	5	2	7	2	..
Total	56	28	5	16	2	5

TABLE 3.—*Cause of Death in Hospital of Infants Born in Lincoln Hospitals Who Died in the Neonatal Period, by Birth Weight (1953)*

	No. of Neonatal Deaths of Live-Born Infants								
Cause of Neonatal Death *	Total	Total 2,500 Gm. or Less	500 Gm. or Less	501-1,000 Gm.	1,001-1,500 Gm.	1,501-2,000 Gm.	2,001-2,500 Gm.	Premature, but Birth Weight Unknown	Total 2,501 Gm. or More
Postnatal asphyxia and atelectasis (762)	14	7	..	..	3 (1 †)	3 (1 †)	1	..	7 (1 †)
Injury at birth (760-761)	1	..	..	..	..	..	..	..	1
Congenital malformations (750-759)	8	4	..	..	2 (1 †)	2	..	..	4
Infections of newborn infants (763-768)	2	1	..	..	..	..	1	..	1
Blood dyscrasias (770-771)	3	..	..	..	..	..	..	..	3
All other known causes	..	..	..	..	..	..	..	..	..
Unknown cause									
Prematurity (immaturity) unqualified (776)	28	28	2 (1 †)	9 (9 †)	4 (4 †)	8 (7 †)	..	5 (5 †)	..
All other neonatal deaths from unknown cause	..	..	..	..	..	..	..	..	..
Total	56	40	2	9	9	13	2	5	16

---

* According to International Statistical Classification of Diseases, Injuries and Causes of Death, Sixth Revision.
† Autopsy not performed in these cases.

Tables 2 and 3 indicate neonatal deaths by age and birth weight and by cause of death and birth weight respectively. The tables are given as recommended (slightly modified) in Standards and Recommendations for Hospital Care of Newborn Infants: Full Term and Premature, American Academy of Pediatrics. Of the 16 neonatal deaths unassociated with prematurity, the largest number, 7, were due to atelectasis or atelectasis combined with pneumonitis; fetal erythroblastosis caused 3 deaths and congenital heart abnormalities 3 deaths. Table 2 shows that 50% of the total neonatal deaths occurred within 24 hours after birth, and this occurrence is considerably greater for those infants whose birth weights were less than 2,500 gm. than for those over 2,500 gm. Table 3 indicates that 28 (50%) of the total neonatal deaths were classified as due to "prematurity (immaturity), unqualified" (autopsies were done on two infants in this group). The greatest specific cause of death of both premature and full-term babies was postnatal asphyxia and atelectasis, with congenital malformations the second greatest cause. Autopsies had been done in most of these cases.

Lancaster County Medical Society.—The Lancaster County Medical Society represents about 200 physicians in the city of Lincoln and county of Lancaster. Eight pediatricians and nine obstetricians serve Lincoln and environs. Although the society has regular standing committees and special advisory committees that maintain close liaison with the public, it has no special standing committee concerned with maternal and child care. The state medical association committees serve this need. The state association office is located in Lincoln.

Well-Child Conferences.—The Lincoln-Lancaster County Health Department operates two well-child clinics per week. Eligibility rules are flexible, but the clinics are maintained essentially for those who cannot afford private care. A local pediatrician is employed on a part-time basis to conduct the clinics, and attendance is arranged by appointment as scheduled by the public health nurse. Records indicate that 185 infants and preschool children made 606 visits to the clinics in 1953. In addition, 1,548 public health nursing visits were made to these and other infants and children in their homes.

Other Health Department Maternal and Child Health Activities.—A dental clinic is conducted four hours per day, five days a week, by the city-county health department under the supervision of a part-time dentist. Services are primarily for those preschool and school children who cannot afford private care. A total of 1,329 examination and treatment services were provided to 493 patients in 1953, 308 of whom were school and preschool children. The immunization service of the health department accounted for 14,835 smallpox vaccinations, plus 588 triple antigen shots and 520 booster shots given to infants and preschool and school children. The health department's maternity service (prenatal and postpartum care) was very small, with only eight patients and a total of 49 prenatal and 9 postpartum care clinic visits. The health department nurses, however, made a total of 265 field visits for antepartum and postpartum care. Expectant parent's classes are conducted each year under the auspices of the department's nursing service, the obstetric departments of the three hospitals, the medical society, the Red Cross, the local Y.W.C.A., and the state health department. Class attendance in 1953 was 582.

Child Guidance Center.—The Lincoln-Lancaster County Child Guidance Center is a nonprofit (dues-paying members) organization administered by a board of directors of 24 in cooperation with the mental health division of the state board of health (federal funds) and with additional financial assistance from the Community Chest and other agencies. Seven local physicians are members of the board of directors and five are members of the center's advisory and policy committee. The center proceeds under psychiatric guidance in all cases and is the only private resource of its kind in the state. The fee schedule is flexible, and no charge is made in appropriate cases. During 1954 approximately four diagnostic cases, two consultation cases, and four treatment cases were opened each month. Continuing treatment cases carried averaged about 35. In addition, a monthly average of 11 community presentations was made by the staff of the center.

School Health Services.—The health activities of the 31 public schools of Lincoln with an enrollment of approximately 17,000 are the direct responsibility of the board of education. The school health service staff consists of one school nursing supervisor, 13 nurses, 2 part-time dentists, an orthopedic consultant, and a psychiatric consultant. Aid comes from the local health department and the Lancaster County Tuberculosis Association in special activities such as screening for tuberculosis. The city parochial schools and county schools are provided health services by the health department. All kindergarten, third, sixth, and ninth grade public school children (approximately 3,000) are urged, through their parents, to have a physical examination by their private physician. The board of education no longer provides such examinations in the schools. Teachers and other new employees must have had complete medical examinations prior to their being accepted into the Lincoln schools. All public school children from kindergarten to the 12th grade are screened each year for nutritional status and are given vision and throat screening; audiometric tests are given to all 4th, 7th, and 10th grade students; limited dental inspections are made on all children during the first month of school; patch tests are given to all 5th grade pupils; and complete chest x-rays are done annually on all 10th grade pupils, teachers, and school employees. Health education is taught through junior and senior high school courses in health and safety and hygiene and physiology. A three hour college credit symposium in health education is offered for all teachers and nurses. Monthly meetings on health education and information on health activities in school are held for parents.

TABLE 4.—*Vital Statistics* (1952)*

Total resident births		7,079
Live births	6,959	
Registered fetal deaths (stillbirths)	120 (1.7%)	
Percentage delivered in hospitals	99.6%	
Maternal deaths (resident)	6 (0.86/1,000 live births)	
Infant deaths (resident)	176 (25.3/1,000 live births)	

---

* Omaha-Douglas County Health Department.

During the 1953-1954 school year, 2,174 pupils received school physical examinations (a new policy of not providing medical examinations in school began with the 1954-1955 school year); 22% were referred to their family physicians for follow-up and treatment. Dental inspections resulted in 16,508 referrals; vision screening resulted in 236 vision defects corrected; tuberculosis testing and x-rays resulted in 4.3% abnormal conditions found; and follow-up showed 25 pathological conditions discovered.

TABLE 5.—*1953 Hospital Statistics* for Omaha*

Births		
Total infants delivered in the 10 hospitals		9,347
No. of stillbirths (fetal deaths over 20 weeks' gestation)	124 (1.3%)	
Total live births in the 9 hospitals		9,223
Total live-born premature infants	467 (5.1%)	
Deaths		
Total maternal deaths		7 (0.76/1,000 live births)
Total neonatal deaths		158 (17.1/1,000 live births)
Neonatal deaths due to or associated with prematurity	123 (78%)	
Neonatal deaths—other causes	35 (22%)	

---

* All hospitals of Omaha, including the U. S. Air Force Hospital at Offutt Field (outside the city limits).

MATERNAL AND CHILD HEALTH IN OMAHA

Statistics.—Omaha's 1950 census indicates 251,119 inhabitants, 25,474 (10.1%) of whom were under 5 years of age. Foreign-born white persons account for 7% and nonwhite persons another 7% of the city's population. The median school years completed for residents over 25 years of age was 11.4. Some vital statistics for 1952 relative to maternal and child health in Omaha are found in table 4. As in the previous section on Lincoln. Three additional tables are presented to give detailed information on maternal and neonatal deaths occurring in the local hospitals in 1953. These data cannot be compared with health department data in table 4 because they necessarily include other than Omaha resident births. Two of the 10 Omaha hospitals had available data on deaths (abortions or miscarriages) in previable fetuses under 500 gm. or under 20 weeks' gestation. The combined rate for these two hospitals was 54 per 1,000 live births. Table 5 summarizes the vital statistics from the 10 Omaha hospitals, and tables 6 and

TABLE 6.—*Age at Death in Hospital of Infants Born in the Ten Omaha Hospitals Who Died in the Neonatal Period, by Birth Weight (1953)*

		No. of Neonatal Deaths by Completed Days of Age at Death				
Birth Weight, Gm.	Total	Under 1 Day (Under 24 Hr.)	1 Day (24-47 Hr.)	2 to 6 Days (48-167 Hr.)	7 to Under 28 Days	Age Unknown
500 or less	4	4	..	..	..	..
501-1,000	30	14	11	5	..	..
1,001-1,500	25	13	4	7	1	..
1,501-2,000	20	8	7	4	1	..
2,001-2,500	25	12	8	4	1	..
Premature, but weight unknown	19	4	7	..	..	8
Total, 2,500 or less	123	55	37	20	3	8
2,501-3,000	9	..	8	1	..	..
3,001-3,500	12	5	2	5	..	..
3,501-4,000	8	5	..	3	..	..
4,001-4,500	2	..	1	1	..	..
Birth weight unknown	4	2	1	..	..	1
Total, 2,501 or more	35	12	12	10	..	1
Total	158	67	49	30	3	9

7 give detailed information on the neonatal deaths by age at death and birth weight and by birth weight and causes of death respectively.

Almost one-half (45%) of the neonatal deaths of premature babies in Omaha hospitals occurred within 24 hours after birth, and, as with Lincoln, the number of deaths of full-term babies was only one-third as great during the first 24 hours as after that time. Autopsies had been done in one-third of the neonatal death cases that were classified prematurity, unqualified, and the total in this classification constituted over one-half (56%) of all neonatal deaths of infants under 2,501 gm. Again, as in Lincoln, the greatest specific cause (other than prematurity, unqualified) of neonatal death was postnatal asphyxia and atelectasis, with autopsy having been done in 38 out of the 43 cases in which this diagnosis was made. Congenital malformations and injuries at birth ranked second and third respectively.

TABLE 7.—*Cause of Death in Hospital of Infants Born in the Ten Omaha Hospitals Who Died in the Neonatal Period, by Birth Weight (1953)*

		No. of Neonatal Deaths of Live-Born Infants							
Cause of Neonatal Death *	Total	Total 2,500 Gm. or Less	500 Gm. or Less	501-1,000 Gm.	1,001-1,500 Gm.	1,501-2,000 Gm.	2,001-2,500 Gm.	Premature, but Birth Weight Unknown	Total 2,500 Gm. or More
Postnatal asphyxia and atelectasis (762)........	43	35	..	3	8	10 (2 †)	14 (2 †)	..	8 (1 †)
Injury at birth (760-761)........................	10	7	..	..	1	3	1	2	3 (1 †)
Congenital malformations (750-759)..............	16	6	..	..	..	3	2	1	10 (3 †)
Infections of the newborn (763-768).......	2	2	..	..	..	..	1	1	..
Blood dyscrasias (770-771).................. ...	6	1	..	..	..	..	..	1	5
All other known causes..........................	4	2	..	..	1	..	1	..	2
Unknown cause									
Prematurity (immaturity) unqualified (776)...	70	69	4 (1 †)	27 (17 †)	15 (13 †)	4 (4 †)	5 (3 †)	14 (10 †)	1 (1 †)
All other neonatal deaths from unknown cause	7	1	..	..	..	..	1 (1 †)	..	6 (5 †)
Total....................................	158	123	4	30	25	20	25	19	35

* According to International Statistical Classification of Diseases, Injuries and Causes of Death, Sixth Revision.
† Autopsy not performed in these cases.

Omaha-Douglas County Medical Society.—The Omaha-Douglas County Medical Society's office, and headquarters, in Omaha is the focal point through which the profession's organized efforts reach the public. Efforts toward improvement in public health are well exemplified by the work of its committee on education and preventive medicine that, in cooperation with other agencies, keeps before the public all types of health education material from "First Aid in the Home" to "Old Wives Tales—Pregnancy" via television, radio, the press, and various publications. The society has approximately 400 active members, including 18 pediatricians and 19 obstetricians who serve the Omaha area.

Well-Child Clinics.—Eight well-child clinics covering the various areas of the city are sponsored by the Omaha-Douglas County Health Department's division of public health nursing (Visiting Nurse Association) with the cooperation of the University of Nebraska Hospital and financial support from the Community Chest and other agencies. Eligibility is limited to those under a certain income level who would otherwise probably not seek this care through a private physician. The purpose of this program is to keep the well child well and find defects early. No immunizations or treatments are given at these clinics—rather those in need of these services are referred to a private physician or the Health Department Immunization Clinic. Medical policy is determined by a medical advisory committee of the local medical society, which body also approves the physicians who conduct each clinic. During 1953 a total of 197 well-child clinics were held, serving 594 infants and 1,430 preschool children. In addition to the above-described clinics, both medical schools in Omaha have well-child clinics at their respective dispensaries that are limited to those infants delivered at their respective affiliated hospitals.

Immunization Program.—The health department and its division of public health nursing (Visiting Nurse Association) sponsor the program of immunization as a preventive health service without restriction as to income level. However, the children served are mostly those referred by public health and public school nurses. Each of the three clinics (located in strategic areas of the city) is open every Saturday morning and staffed by a part-time physician and one or more public health nurses. Children are immunized against smallpox, diphtheria, whooping cough, and tetanus; during 1953 approximately 5,000 visits were made to these clinics.

Public Health Nursing in Omaha (Relative to Maternal and Child Health).—The Visiting Nurse Association of Omaha has been incorporated into the reorganized Omaha-Douglas County Health Department as its division of public health nursing. In addition to the division's part in the above-described clinics it plays an integral part in the health services to the 41 parochial schools of Omaha and the 52 public schools in Douglas County (exclusive of Omaha). Also, the division's nursing service is available to prenatal patients on a fee basis or free, as the financial situation of the family indicates. Creighton University Dispensary routinely refers all prenatal patients to the Visiting Nurse Association. The University of Nebraska Dispensary refers many of its prenatal patients and all of its primiparas after delivery. The division nurses made a total of 33,462 home visits during 1953, and 17,739 (53%) were concerned with maternity, infant, preschool and school children, and orthopedic cases. Besides the director, the division (Visiting Nurse Association) employs an educational director, 3 supervisors, 3 physical therapists, and 27 nurses.

Health Education in Omaha (Relative to Maternal and Child Health).—The health education division of the health department directs the collection and dissemination of information relating to maternal and child health. The division assists and cooperates with other professional groups and agencies such as the medical society, dental society, P.T.A., and United Community Services. A library of books, current literature, and films is maintained; preservice programs are conducted for nurses and medical students in which the University of Nebraska, Creighton University, and the University of South Dakota participate.

Omaha Public School Dental Clinic.—The Omaha Public School Dental Clinic was established under the joint sponsorship of the Omaha Board of Education and the health department upon the recommendation of the Omaha District Dental Society after a survey in which it was concluded that dental decay was a major problem in Omaha school children and that all available preventive measures should be employed. A complete four-chair full-time dental clinic was established at Central High School. A full-time dental assistant and a receptionist are paid by the board of education. Four part-time dentists are paid by the health department (state and federal funds). During the 1952-1953 school year, 5,449 patients visited the clinic and received a total of 24,837 services, such as fillings, extractions, prophylaxis, and x-rays.

School Health Program.—The board of education through its office of special services administers the public school health program with the advice and cooperation of the health department and the local physicians. No medical director or part-time physicians are employed, and, therefore, no physical examinations are performed in the schools. Rather, this phase of the health appraisal is accomplished in private doctors' offices and at the available dispensaries and clinics for those who cannot afford private physician care. Parents are encouraged to have their children examined before kindergarten and in the 3rd, 5th, 8th, and 11th grades. The screening phase of the health appraisal of public school children is accomplished by 20 full-time school nurses and the teachers. This screening includes nutritional status, vision, hearing, skin and scalp, nervous symptoms, speech, and posture. Dental screening and examination is done by private dentists and the public school dental clinic. Tuberculin tests are given all ninth graders, cafeteria workers, teachers, and custodial help by the tuberculosis association. Teachers are oriented into the school health program during the week prior to school, and parents are kept informed on school health activities through P.T.A. and home visits by nurses. The board of education conducts a special school for the handicapped where teaching is combined with physical, occupational, and speech therapy. During the 1952-1953 school year, over 5,000 treatments were given to registered handicapped children through the public school system.

Of the 24,437 kindergarten through eighth grade pupils registered in 1952-1953, 97.4% had had a medical examination as of June 1, 1953, 7,115 (29.1%) having had one during the year, with 6,165 (87%) having been performed by the family physician. During this same year, 7,700 pupils received dental certificates for work completed or no work needed, and 3,349 additional pupils made one or more visits to a dentist; 11,324 pupils were given vision tests, resulting in 1,313 being fitted with glasses; and 2,324 had audiometric tests, with 319 defective hearing cases found and 271 pupils receiving ear examinations. During the 1952-1953 year, the total defects found through physical examinations and screening procedures were 20,187; 16,031 were seen by doctors; 14,003 corrections were made and 2,028 were under treatment; and 91.2% of the pupils had been vaccinated and 95% immunized against diphtheria and whooping cough.

CONCLUSIONS

Section B of this study, on Lincoln and Omaha, is closely related to section A, which was concerned with maternal and child care on a statewide basis. The services and facilities available and the various factors related to the improvement of maternal and child care on a state level apply with even greater emphasis to these two metropolitan areas. For instance, the median school years completed for residents of Omaha over 25 years of age was 11.4, compared to 10.1 for the state. The study (sections A and B) indicates that much emphasis has been placed on health education. The "Nebraska School-Community Health Program," the Omaha-Douglas County Medical Society's radio and television programs, the state and local health department programs, the state medical society's efforts through committees and individual members, the Nebraska Public Health Association's contributions, and the assistance from other health agencies have undoubtedly contributed to the improvement of maternal and child health.

The total neonatal death rates for the state as a whole compare very favorably with those of the hospitals of Lincoln and Omaha. Therefore, it is apparent that quality care is being administered throughout the state and that, through the emphasis on education, the citizens have been taught to seek those health services that are available to them through their private physicians. A careful study of the tables presented relative to age, weight, and cause of death should indicate quite clearly specific areas where problems still exist. The beginning that Nebraska has already made is a pointer in the direction of still greater progress in the improvement of maternal, infant, and child health in the state's metropolitan and rural areas.

The education of the laity in matters of health is important, but of equal importance is the emphasis placed upon a high standard of obstetric and pediatric care by the physicians of Nebraska. This has been greatly facilitated by the presence in Nebraska of two medical schools and their affiliated hospitals. Other hospitals of the state have tended to keep pace, due to the medical staff's awareness of facilities necessary and the state health department's assistance in maintaining high standards of hospital care for mothers and babies of Nebraska through its division of maternal and child health.

MEDICAL NEWS

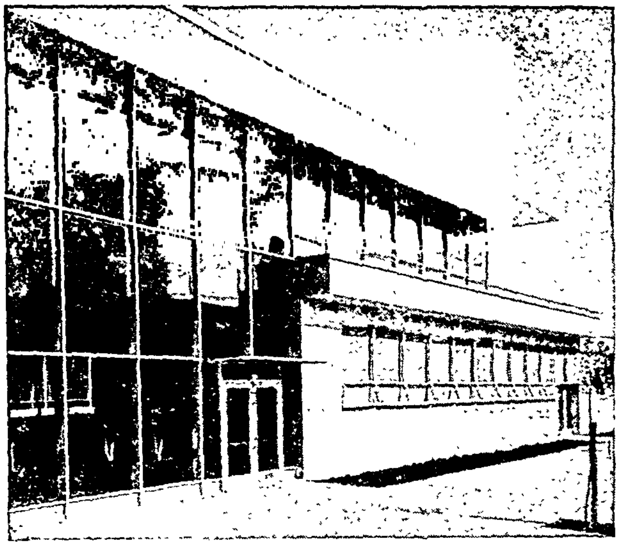
CALIFORNIA

Symposiums in San Diego.—The Los Angeles campus of the University of California School of Medicine and Medical Extension in cooperation with the San Diego County Medical Society will present the following symposiums from 2 to 10 p. m. at San Diego County General Hospital:

Oct. 26, Repair of Superficial Wounds and Burns.
Nov. 2, Radioisotopes in Medical Practice.
Nov. 9, Surgery of the Hand.

Applications should be made to Dr. Thomas H. Sternberg, Assistant Dean for Postgraduate Medical Education, University of California School of Medicine, Los Angeles 24.

Society Moves Its Headquarters.—The San Francisco Medical Society and its blood bank recently have moved from the old mansion at 2180 Washington St. to a new fireproof concrete building at 250 Masonic Ave., practically the geographical center of the city. The building may be easily expanded to a full three stories, and a balcony seating 250 may be added to the auditorium, which now seats 500. Space for the minifilm unit, an office for the woman's auxiliary, and a large kitchen adjacent to the auditorium are also on the first floor. The L-shaped blood bank, occupying the major part of the first floor, has a separate entrance. A conveyor along the south side runs from the donors' room to the refrigerator. The society entrance has a striking cantilever staircase, set in a planting area, leading to the society's administrative offices and a directors' room on the second floor. The wings of the building enclose a courtyard with a glassed-in promenade off the auditorium. Ample parking facilities are included.



Entrance to new headquarters of San Francisco Medical Society.

Course in Pediatrics.—Recent advances in basic aspects of pediatric medicine will be presented by the University of California School of Medicine and University Extension at the university's medical center in Los Angeles Oct. 27-29. The subjects include Problems in the Management of the Newborn Infant; Problems of the Noncompetitive Child; Pediatric Aspects of Cardiology; Anemias of Infancy and Childhood; and Fluid Balance and Electrolyte Therapy in Pediatrics. Application or request for information concerning this course should be made to Dr. Thomas H. Sternberg, Assistant Dean for Postgraduate Medical Education, University of California Medical Center, Los Angeles 24 (GRanite 8-9711).

COLORADO

Meeting of Hospital Association.—The Colorado Hospital Association will hold its 31st annual meeting at the Cosmopolitan Hotel, Denver, Oct. 25-26. The subjects for discussion will be "The Growth and Changing Role of Hospitals"; "Impact on Hospitals of New Methods of Treatment"; "The Chronically Ill and the Care of the Aged"; and "What Plans Should Hospitals Lay for Them?"

FLORIDA

Meeting of Practitioners.—The Florida Academy of General Practice will hold its sixth annual scientific assembly at the Princess Issena Hotel, Daytona Beach, Oct. 22-23. Presentations by out-of-state speakers will include:

Treatment of Reversible Uremia, Franklin H. Epstein, New Haven, Conn.
Management of Melanomas, Richard D. Brasfield, New York.
Various Types of Insulin and Their Use, Joseph T. Beardwood Jr., Philadelphia.
Congestive Heart Failure, Robert C. Batterman, New York.
Medical Complications of Pregnancy; Clinical Aspects of the Contracted Pelvis, Willis E. Brown, Little Rock, Ark.
Care of the Newborn, Thomas E. Bailey, Augusta, Ga.

The sessions will close with a clinicopathological conference by Dr. William W. Schildecker, Daytona Beach. A cocktail party, Saturday 6 p. m., will precede the annual banquet, at which the principal speaker, Dr. Frank G. Slaughter, Jacksonville, will have as his subject "Physician's Heritage."

ILLINOIS

Personal.—Dr. Harold C. Lueth, Evanston, has been promoted to the rank of brigadier general in the Army Reserve by the Illinois Military District, with headquarters in Chicago. He is currently commanding general of the 801st Medical Detachment (hospital center).

Diamond Jubilee.—The Winnebago County Medical Society celebrated its 75th anniversary on Oct. 11 at Rockford. Dr. Elmer Hess, Erie, Pa., President of the American Medical Association, appeared in a society-sponsored television program, "Let's Talk It Over," in the afternoon and in the evening addressed the members of the society and guests at the Forest Hills Country Club. Dr. Hess was the speaker at the noon meeting of the Kiwanis Club.

Chicago

Dallas B. Phemister Lecture.—Dr. Charles F. W. Illingworth, Regius Professor of Surgery, University of Glasgow, will deliver the second Dallas B. Phemister Lecture at the Billings Hospital Auditorium, 950 E. 59th St., Oct. 28, 8 p. m. The subject of his address will be recent research on peptic ulcer. The profession is invited.

Phi Beta Pi Lecture.—Theta chapter of Phi Beta Pi fraternity will sponsor its annual Stephen Walter Ranson Lecture at 4 p. m. Oct. 27 in Thorne Hall on the Northwestern University campus at Superior Street and Lake Shore Drive. Dr. John H. Lawrence, chief, Donner Laboratories, University of California, Berkeley, will discuss "Some Recent Investigations in Medicine."

Blatt Memorial Lecture.—The pediatric staff of the Cook County Hospital announces that the seventh annual Maurice Lamm Blatt Memorial Fund Lecture will be given Oct. 24, 8:30 p. m., in the Medical Amphitheater of the Cook County Hospital. Dr. Wolfgang W. Zuelzer, director of laboratories of the Children's Hospital, Detroit, will discuss "Maternal Fetal Incompatibility in the O-A-B System and Hemolytic Disease of the Newborn."

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

Wilder Memorial Lecture.—The sixth William Hamlin Wilder Memorial Lecture of the Institute of Medicine of Chicago, an illustrated presentation, "Human Toxoplasmosis with Special Reference to Intraocular Inflammation," by Dr. Albert B. Sabin, professor of research pediatrics, University of Cincinnati College of Medicine, will be delivered at a joint meeting of the institute, the Chicago Society of Internal Medicine, and the Chicago Ophthalmological Society at the Drake Hotel, 8:15 p. m., Oct. 24. All are welcome. Telephone during the meeting, SUperior 7-2200. Preceding the meeting there will be cocktails at 6 p. m. followed by dinner ($5.75 per plate).

Mayo Memorial Lectures.—Prof. Erling Dahl-Iversen, professor of surgery, University of Copenhagen, Denmark, will deliver the Charles H. Mayo Memorial Lectures at Thorne Hall (Superior Street and Lake Shore Drive), Northwestern University Medical School. Prof. Dahl-Iversen, who is also chief of surgical services of the University Surgical Clinic at Rigshospitalet, Copenhagen, will address Chicago physicians and surgeons at 4 p. m. Oct. 26 on the functions of the endocrine organs during the postoperative period. The lectureships on surgery were instituted in 1931 by the late Dr. Charles H. Mayo, founder of the Mayo Clinics, who was graduated from Northwestern University Medical School in 1888.

Meeting on Cerebral Palsy.—"Trends in Cerebral Palsy Care and Treatment" will be the theme of a meeting sponsored by the United Cerebral Palsy Association of Illinois, United Cerebral Association of Chicago, Parents Association for Cerebral Palsy Children, and the Spastic Paralysis Aid Foundation on Oct. 29, 8:30 a. m., at the Spalding School, 1628 W. Washington Blvd. Trends in medical care will be discussed by Dr. Edward F. Lis, Research and Educational Hospitals, and trends in research by Dr. Glidden L. Brooks, national medical director, United Cerebral Palsy Association, New York. A tour of Spalding School will precede luncheon and the afternoon discussion groups. Parents of cerebral palsied children and interested professional persons are cordially invited. There is no registration fee.

MARYLAND

University News.—Dr. Samuel P. Bessman, director of biochemical research of the Research Foundation at Children's Hospital, Washington, D. C., has been appointed associate professor of pediatrics in the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore.

Practitioners Meet in Baltimore.—The Maryland Academy of General Practice will hold its seventh annual scientific assembly at the Sheraton Belvedere Hotel in Baltimore Oct. 26-27. Dr. Merrill M. Cross, Silver Spring, president, will serve as toastmaster at the banquet Wednesday, 7 p. m., at which Mr. Mac F. Cahal, Kansas City, Mo., executive secretary, American Academy of General Practice, will be the speaker. Other out-of-state speakers include:

Walter A. L. Thompson, New York, Orthopedic Problems Encountered in General Practice.
Laurence L. Robbins, Boston, Roentgenology and the General Practitioner.
Elmer C. Bartels, Boston, Medical Treatment of Thyroid Disease.
Henry P. Laughlin, Washington, D. C., Psychiatry in General Practice.
George L. Kelly, Augusta, Ga., Problems of Libido and Potentia Encountered in General Practice.
Frederic D. Zeman, New York, General Therapeutic Considerations.
Murray B. Ferderber, Pittsburgh, Rehabilitation.
Austin I. Dodson, Richmond, Va., Treatment of Urinary Tract Infections.

MASSACHUSETTS

Meeting of Diabetes Association.—The New England Diabetes Association will meet Oct. 25, 8 p. m., in the Joslin Auditorium of the New England Deaconess Hospital, Boston. Herman B. Chase, Ph.D., professor of biology at Brown University, Providence, R. I., will speak on inherited insulin resistance in animals, and Dr. Russell J. Barrnett, assistant professor of anatomy at Harvard Medical School, Boston, will talk on histochemical demonstration of insulin.

MISSOURI

Ginsberg Memorial Seminar.—The first annual Dr. A. Morris Ginsberg Memorial Clinical Seminar, established in memory of the late clinical professor of medicine at the University of Kansas, will be held in the auditorium of the Menorah Medical Center, Kansas City, Oct. 27-29. Dr. Meyer Friedman, director, Brunn Cardiovascular Research Institute at Mount Zion Hospital, San Francisco, will lecture on "Functional and Cardiovascular Disease," "Studies in Digitalis Therapy," and "Cholesterol Metabolism" at 10 a. m. Thursday, Friday, and Saturday respectively. He will also lead the panel discussion on Hypertension, Thursday; Clinical Use of Digitalis, Friday; and Clinical Management of Coronary Arteriosclerosis, Saturday; each to be held at 11:30 a. m. A clinicopathological conference will take place at 2 p. m. Thursday, and a combined staff conference will be held at 9 a. m. Saturday. Daily ward rounds and informal discussions with the Menorah staff will be conducted by Dr. Friedman. Physicians in the Kansas City area are invited to participate.

NEBRASKA

Mid-West Clinical Society.—The Omaha Mid-West Clinical Society will hold its 23rd annual assembly Oct. 24-27 at the Hotel Paxton. A panel discussion on upper gastrointestinal hemorrhage is scheduled for Monday, 1:30 p. m. At the dinner, 6 p. m., Dr. Frank H. Bethell, Ann Arbor, Mich., will lead a discussion on hemorrhagic disorders. The Tuesday afternoon session will open with a panel discussion, "Treatment of Carcinoma of the Endometrium." Dr. Harold D. Palmer, Denver, will be leader for the Tuesday dinner discussion, "Malignant Lesions of the Abdomen and Pelvis in Infants and Children." The Wednesday afternoon panel discussion, 1:30 p. m., will be devoted to poisoning in children. The dinner discussion leader will be Dr. Francis L. Lederer, Chicago ("Adenoid and Tonsil Operations—To Be or Not to Be"). Panel discussion Thursday, 1:30 p. m., will be on treatment of cardiovascular problems. The dinner, 6 p. m., at which Dr. J. Scott Butterworth, New York, will lead the discussion about "Auscultation of the Heart—A Neglected Art," will be followed by an evening meeting, 7:30 p. m., at which Dr. Charles W. Mayo, Rochester, Minn., will have as his subject "The United Nations and the Role of Doctors and Medicine in International Relations."

NEW YORK

Sixth Wadsworth Lecture.—The sixth Augustus B. Wadsworth Lecture will be given at the division of laboratories and research, New York State Department of Health, Albany, Oct. 27, by Dr. John G. Kidd, professor of pathology, Cornell University Medical College, New York City, on "Immunological Approaches to the Problems of Cancer."

Personal.—The Samuel Sackett Foundation, which studies rheumatic fever and its related diseases, announces that Dr. Gene H. Stollerman, medical director of Irvington House in Irvington, has been appointed to direct rheumatic fever research in the department of medicine of Northwestern University Medical School, Chicago. The research program was made possible by the income from a $500,000 endowment providing for the research on a permanent basis.

New York City

Second Harvey Lecture.—Ernest F. Gale, director, Medical Research Council Unit for Chemical Microbiology, University of Cambridge, England, will deliver the second Harvey Lecture of the current series at the New York Academy of Medicine on Oct. 27 on "Nucleic Acids and Protein Synthesis."

Meding Award.—The Dr. Charles Bramman Meding award, granted annually to a person judged to have made an important contribution to the advancement of otolaryngology and/or ophthalmology, will be presented to Dr. Franz Altmann on Oct. 28 by the Harlem Eye and Ear Hospital. Dr. Altmann's film, "Embryology of the Ear," will be shown at the hospital auditorium coincident with the presentation of the award.

Symposium on Diabetes.—The third symposium on diabetes mellitus will be held Oct. 27 at the Memorial Center for Cancer and Allied Diseases, 410 E. 68th St., under the sponsorship of the Clinical Society of the New York Diabetes Association. The topic for discussion will be "The Pituitary-Adrenal System and Diabetes Mellitus." Out-of-state speakers include Dr. Carl F. Cori, St. Louis, Dr. Rachmiel Levine, Chicago, and Dr. E. Perry McCullagh, Cleveland. The sessions are open to physicians, medical students, and other professional personnel. Advance registration must be made through the New York Diabetes Association, 270 Park Ave., New York 17. There is no registration fee.

Assistant Medical Examiner Wanted.—The Department of Personnel, city of New York, is reopening applications for assistant medical examiner (office of the chief medical examiner). Persons who filed applications in March, 1954, are requested to bring their applications up to date. The salary range is from $8,200 to $10,300 a year, and the position offers pension, sick leave, and paid vacations. The minimum requirements are an M.D. degree from an accredited school; one year of formal appointment as intern in an approved general hospital; two years of training or full-time experience in gross and microscopic pathology in a laboratory of an approved university, morgue, or hospital, or a satisfactory equivalent; evidence, subject to official verification, of having performed 150 autopsies; and a valid New York State license to practice medicine. Applications, together with the $5 fee, will be accepted to 4 p. m., Oct. 26, at the Department of Personnel, 96 Duane St., New York 7. A request for application by mail must be accompanied by a 9 in., self-addressed envelope, stamped 6 cents for return.

NORTH CAROLINA

Annual Symposium at Raleigh.—The seventh annual medical and surgical symposium of the Raleigh Academy of Medicine will be held Oct. 27 at the Sir Walter Hotel in Raleigh, beginning at 9:30 a. m. and terminating with an after-dinner address. The following program will conclude with panel discussion by all participants:

Hypertensive Toxemias of Pregnancy, Leon C. Chesley, Ph.D., State University of New York College of Medicine, Brooklyn.
Medical Diseases Complicated by Pregnancy, Alvin J. B. Tillman, Columbia University College of Physicians and Surgeons, New York.
Vaginitis and Vulvovaginitis, C. P. Jones, M.T., consulting bacteriologist, Duke Hospital, Durham.
Vaginal Hysterectomy, Edward D. Allen, Chicago.
Developmental Picture of Carcinoma of the Cervix, Cyrus C. Erickson, University of Tennessee College of Medicine, Memphis.

Dr. Robert A. Kimbrough, Philadelphia, will moderate the program and the panel discussion and will deliver the after-dinner address, "Carcinoma of the Cervix." All physicians are cordially invited to attend the symposium, the cocktail hour, and the dinner as guests of the academy.

OHIO

Course on Gastroenterology.—The Frank E. Bunts Educational Institute, Cleveland, announces a postgraduate continuation course, "Newer Developments in Gastroenterology," Oct. 26-27, including discussions of the surgical and medical aspects of gastrointestinal diseases; demonstrations of the newer roentgenographic techniques used in diagnosis of hiatus hernia, jejunal ulcer, diverticulum, and papilla of the colon, with special attention to intravenous cholangiography; and a practical demonstration of laboratory procedures. Information may be obtained from the Secretary of the Frank E. Bunts Educational Institute, 2020 E. 93rd St., Cleveland 6.

OKLAHOMA

Personal.—The citizens of Blair and the surrounding area held an all-day celebration in tribute to Dr. Robert Z. Taylor on his 71st birthday. Dr. Taylor has been practicing in Blair since 1909.

Meeting of Clinical Society of Oklahoma City.—The 25th annual conference of the Oklahoma City Clinical Society will convene Oct. 24-27 at the Biltmore Hotel. Dr. Elmer Hess, Erie, Pa., President, American Medical Association, will deliver the banquet address Monday. Other guest lecturers are: Drs. James H. Allen and Theodore A. Watters, New Orleans; Edward P. Cawley, Charlottesville, Va.; Richard V. Ebert, Little Rock, Ark.; Keith S. Grimson, Durham, N. C.; John R. Hannan, Cleveland; Arild E. Hansen, Galveston, Texas; Carl P. Huber and Edward B. Smith, Indianapolis; Raymond J. Jackman, Rochester, Minn.; Emanuel M. Papper, New York; Homer E. Prince, Houston, Texas; Clyde L. Randall, Buffalo; Lowell A. Rantz, San Francisco; Dana M. Street, Memphis, Tenn.; and Everett D. Sugarbaker, Jefferson City, Mo. The sessions will include a clinicopathological conference, general assembly, round-table luncheons, a smoker, and dinner meetings. The registration fee of $20 includes all these features. For information address: Executive Secretary, 503 Medical Arts Bldg., Oklahoma City.

PENNSYLVANIA

Medical Examiner System.—As the final step in establishing the medical examiner system in Philadelphia, where nonmedical personnel have previously held the post of coroner, the Philadelphia Department of Public Health has announced plans to fill the position of medical examiner with a physician trained in pathology and forensic medicine. Recent legislation of the Philadelphia City Council defined the post as one responsible to the department of public health and enabled the health department itself to set the requirements for Civil Service appointment to the position.

Philadelphia

Geriatrics Conference.—The Home for the Jewish Aged, 5301 Old York Rd., will sponsor the first annual medical symposium on clinical aspects of the aging process, with special reference to neurology, psychiatry, nutrition, and cardiology, Oct. 23, 10 a. m.-4 p. m. Dr. Nathan Blumberg, medical director of the home, will serve as chairman. The following panels will be presented: (1) Neurology and Psychiatry, Drs. Matthew T. Moore and Maurice E. Linden, Philadelphia, and Abraham M. Rabiner, Brooklyn, N. Y.; (2) Nutrition, Drs. Robert S. Goodhart, New York, Donald M. Watkin, Staten Island, N. Y., and Hertha K. Sorter, Chicago; and (3) Cardiology, Drs. James B. Donaldson, Philadelphia, Raymond Harris, Albany, N. Y., and Simon Dack, New York. Luncheon will be served at 1 p. m. Physicians are cordially invited.

Pemberton Lecture on Rheumatoid Disease.—The fifth annual Dr. Ralph Pemberton Memorial Lecture, "The Nature of Rheumatoid Disease," will be delivered by Dr. Metro A. Ogryzlo, assistant professor of medicine, University of Toronto Faculty of Medicine, Toronto, Canada, under the sponsorship of the eastern Pennsylvania chapter of the Arthritis and Rheumatism Foundation and the Philadelphia Rheumatism Society Oct. 27, 8:30 p. m., at the Philadelphia County Medical Society, 301 S. 21st St. A reception and dinner (subscription $6) will be held at 6 p. m. Physicians may place reservations through Dr. William J. Somerville, Chairman, % Arthritis and Rheumatism Foundation, John Bartram Hotel, Philadelphia 7. Formal credits will be allowed for the lecture by the Academy of General Practice. The public is invited.

VERMONT

New Department of Preventive Medicine.—The University of Vermont College of Medicine, Burlington, announces the Commonwealth Fund of New York City has approved a project for the establishment of a new department of preventive medicine and for the development of a Regional Medical Needs Project. The project is to run four years, beginning Feb. 1, 1956. Dr. Leon R. Lezer, assistant professor of preventive medicine at the college, is chairman of the 16-member committee, formed to consider the rural medical needs of Maine, New Hampshire, and Vermont. The new department, consisting of a sociologist, medical social worker, public health nurse, health educator, statistician, and secretarial help, will be "the nucleus that will develop a teaching program in comprehensive medical care." It will also be a primary function of the staff to "act as consultants on request to rural areas in Maine, New Hampshire, and Vermont in studying local medical needs."

Serving on the committee with Dr. Lezer are commissioners of health, medical society officers, and members of medical college faculties from Vermont, New Hampshire, and Maine.

WEST VIRGINIA

Personal.—Dr. Ralph W. Ryan, Morgantown, has accepted appointment as civilian consultant in ophthalmology to the National Institutes of Health at Bethesda, Md., where he will do research in the control of eye diseases. He will, however, continue the practice of his specialty in Morgantown.

State Medical Election.—Dr. Athey R. Lutz, Parkersburg, was recently elected president of the West Virginia State Medical Association; Dr. E. Lyle Gage, Bluefield, first vice-president (reelected); Dr. Charles A. Hoffman, Huntington, second vice-president; and Dr. T. Maxfield Barber, Charleston, treasurer (reelected). The next annual meeting will be held at the Greenbrier Aug. 23-25, 1956.

WISCONSIN

Course on Radioisotopes.—A course for nonradiologists on the application of radioisotopes in clinical medicine is being offered on four consecutive Thursday afternoons, beginning Oct. 20, 10 a. m., at Marquette University School of Medicine, Milwaukee. The course is under the direction of Dr. Irving I. Cowan, director of the department of isotopes and assistant clinical professor of radiology. Tuition is $20 for the eight-hour course.

GENERAL

Meeting of Industrial Council.—At its annual meeting at the Rensselaer Polytechnic Institute in Troy, N. Y., Oct. 27-29, the Industrial Council, a national forum of educators and American industry, will have as its subject "The Pharmaceutical Industry." The principal speakers will include Pierre A. deTarnowsky, Mead Johnson & Company, Evansville, Ind.; Dr. Theodore G. Klumpp, Winthrop-Stearns, Inc., New York; Dr. Raymond M. Rice, Eli Lilly and Company, Indianapolis; and Ernest H. Volwiler, Ph.D., Abbott Laboratories, North Chicago, Ill.

Western Psychiatric Convention.—The first Western Divisional Meeting of the American Psychiatric Association will be held in San Francisco Oct. 27-30 as a joint meeting with the West Coast psychoanalytic societies. Papers on psychosomatic medicine, psychophysiological response to stress, use of reserpine and chlorpromazine, child psychiatry, group therapy, and teaching of psychiatry have been scheduled. Dr. William G. Barrett, San Francisco, president-elect, American Psychoanalytic Association, will give the academic lecture. The Northern California Psychiatric Society is the host society of the convention. Its newly elected officers are: Dr. Alfred Auerback, San Francisco, president; Dr. William R. Sheehy, Berkeley, vice-president; and Dr. Thomas A. Gonda, San Francisco, secretary-treasurer.

Association of Medical Colleges.—The 66th annual meeting of the Association of American Medical Colleges will be held at the New Ocean House, Swampscott, Mass., Oct. 24-26. The meeting will open Monday with the introduction of new deans. Reports on experiments in medical education will be made Monday and Tuesday afternoons. The following symposium on compensation of faculties of clinical departments will be presented Wednesday morning:

The Full-Time Plan at the University of Chicago, Lowell T. Coggeshall, Chicago.
The Private Diagnostic Clinic at Duke University, Wilburt C. Davison, Durham, N. C.
The University of Virginia Plan, Thomas H. Hunter, Charlottesville, Va.
The University of Iowa Plan, Norman B. Nelson, Iowa City.
The Harvard University Plan, George Packer Berry, Boston.

Meeting of Parenteral Drug Association.—The Parenteral Drug Association will hold its annual meeting Oct. 25-27 at the Hotel New Yorker in New York City. The sessions will open with "Changes Made in the U. S. P. XV Affecting Parenterals" by Lloyd C. Miller, Ph.D., U. S. Pharmacopeia, New York. "Physician Preference in Types of Parenteral Products" will be discussed by Dr. Herbert S. Kupperman, New York University College of Medicine, New York. Dr. Arnold J. Lehman, Food and Drug Administration, Washington, D. C., will present "Pharmacological Testing of New Parenterals." Round-table discussions have been scheduled on the U. S. P., 15th revision, sterility tests and on a program of collaborative research. Dr. Austin Smith, Editor of The Journal, guest of honor and speaker at the banquet, will discuss "Trends in Drug Evaluation."

Meeting of Gastroenterologists.—The second annual convention of the American College of Gastroenterology Oct. 24-26 at the Shoreland Hotel, Chicago, will be followed by a course in postgraduate gastroenterology Oct. 27-29. Attendance at the course will be limited to those who have paid the matriculation fee. Dr. Lynn A. Ferguson, Grand Rapids, Mich., president, will preside over the first scientific session Monday morning. Dr. Martin E. Rehfuss, Philadelphia, will be the speaker at the luncheon, 12:30 p. m. Monday (sponsored by Burton, Parsons & Company; admission by card only). Tuesday at 2 p. m. Dr. Clifford J. Barborka, Chicago, will moderate a panel discussion on peptic ulcer. Participants include Dr. H. Marvin Pollard, Ann Arbor, Mich., and Drs. Robert B. Lewis, E. Clinton Texter Jr., and Walter W. Carroll, all of Chicago. The banquet will be held at 7:30 p. m. Tuesday. More than 29 invited speakers will participate in the scientific sessions.

Anesthesiologists Meet in Boston.—The American Society of Anesthesiologists will hold its annual session at the Hotel Statler, Boston, Oct. 29-Nov. 2. The sessions will open Monday morning with panel symposiums on the endocrine factors in response to anesthesia and surgery. Other panel symposiums will include "The Effects of Anesthetics on the Circulatory Dynamics," "Hypothermic Anesthesia," "What Are the Causes of Death Relative to Anesthesia and Surgery?" and "What Influence Does the Anesthetic Agent Have on the Mortality Rate?" Monday at 8 p. m. there will be an informal meeting to discuss problems related to electroencephalography in anesthesia and to show records of the current investigations in this field. At a historical session Wednesday morning Dr. Albert M. Betcher, New York, will present "The Jubilee Year of Organized Anesthesia," and Dr. F. A. Duncan Alexander, Iowa City, will have as his topic, "James Leonard Corning and the Origins of Spinal Analgesia and Anesthesia."

Symposium on Tuberculosis in Childhood.—The National Jewish Hospital, Denver, will present a Symposium on Tuberculosis in Infancy and Childhood Nov. 9-13. No registration fee will be required. Applications will be considered in order of their receipt by the executive chairman, Dr. Gardner Middlebrook, Denver. Dr. Rene J. Dubos, New York, moderator for the opening session, will present "The Problem," which will be followed by "Historical Comments" by Dr. Bela Schick, New York, and "Morphology of Tuberculous Lesions" by Dr. Kornel L. Terplan, Buffalo. Some 24 presentations will be made, including:

Immunopathology of Tuberculosis, Sidney Raffel, Menlo Park, Calif.
Dynamics of Antituberculous Chemotherapy, Walsh McDermott, New York.
Unusual Cases of Tuberculosis, Ralph V. Platou, New Orleans.
Clinical Aspects of the Natural History of Tuberculosis in Infants and Children, Edith H. Lincoln, New York.
Correlation of in Vitro Sensitivity of M. Tuberculosis with Clinical Response of Patient to Therapy, Hattie E. Alexander, New York.
Management of Special Problems in the Chemotherapy of Tuberculosis in Infants and Children, Jose E. Sifontes, Syracuse, N. Y.

Annual Session on Surgery of Trauma.—The American Association for the Surgery of Trauma will hold its 15th annual session Oct. 27-29 at the Drake Hotel, Chicago. The closing presentation, the presidental address by Dr. Robert H. Kennedy, New York, will be preceded by a symposium (Discussion of Disability Evaluation by Members of the Disability Evaluation Committee of the American Medical Association), presented by Drs. Alexander P. Aitken, Brookline, Mass.; Alfred H. Whittaker, Detroit; Henry H. Kessler, Newark, N. J. (by invitation); and Earl D. McBride, Oklahoma City (by invitation). The program of 40 papers includes 39 invited participants. A cocktail hour at 7 p. m. Friday will precede the annual banquet (black tie preferred), at which Dr. Eric Oldberg, professor of neurology,

Symposium on Diabetes.—The third symposium on diabetes mellitus will be held Oct. 27 at the Memorial Center for Cancer and Allied Diseases, 410 E. 68th St., under the sponsorship of the Clinical Society of the New York Diabetes Association. The topic for discussion will be "The Pituitary-Adrenal System and Diabetes Mellitus." Out-of-state speakers include Dr. Carl F. Cori, St. Louis, Dr. Rachmiel Levine, Chicago, and Dr. E. Perry McCullagh, Cleveland. The sessions are open to physicians, medical students, and other professional personnel. Advance registration must be made through the New York Diabetes Association, 270 Park Ave., New York 17. There is no registration fee.

Assistant Medical Examiner Wanted.—The Department of Personnel, city of New York, is reopening applications for assistant medical examiner (office of the chief medical examiner). Persons who filed applications in March, 1954, are requested to bring their applications up to date. The salary range is from $8,200 to $10,300 a year, and the position offers pension, sick leave, and paid vacations. The minimum requirements are an M.D. degree from an accredited school; one year of formal appointment as intern in an approved general hospital; two years of training or full-time experience in gross and microscopic pathology in a laboratory of an approved university, morgue, or hospital, or a satisfactory equivalent; evidence, subject to official verification, of having performed 150 autopsies; and a valid New York State license to practice medicine. Applications, together with the $5 fee, will be accepted to 4 p. m., Oct. 26, at the Department of Personnel, 96 Duane St., New York 7. A request for application by mail must be accompanied by a 9 in., self-addressed envelope, stamped 6 cents for return.

NORTH CAROLINA

Annual Symposium at Raleigh.—The seventh annual medical and surgical symposium of the Raleigh Academy of Medicine will be held Oct. 27 at the Sir Walter Hotel in Raleigh, beginning at 9:30 a. m. and terminating with an after-dinner address. The following program will conclude with panel discussion by all participants:

Hypertensive Toxemias of Pregnancy, Leon C. Chesley, Ph D., State University of New York College of Medicine, Brooklyn.
Medical Diseases Complicated by Pregnancy, Alvin J. B. Tillman, Columbia University College of Physicians and Surgeons, New York.
Vaginitis and Vulvovaginitis, C. P. Jones, M.T., consulting bacteriologist, Duke Hospital, Durham.
Vaginal Hysterectomy, Edward D. Allen, Chicago.
Developmental Picture of Carcinoma of the Cervix, Cyrus C. Erickson, University of Tennessee College of Medicine, Memphis.

Dr. Robert A. Kimbrough, Philadelphia, will moderate the program and the panel discussion and will deliver the after-dinner address, "Carcinoma of the Cervix." All physicians are cordially invited to attend the symposium, the cocktail hour, and the dinner as guests of the academy.

OHIO

Course on Gastroenterology.—The Frank E. Bunts Educational Institute, Cleveland, announces a postgraduate continuation course, "Newer Developments in Gastroenterology," Oct. 26-27, including discussions of the surgical and medical aspects of gastrointestinal diseases; demonstrations of the newer roentgenographic techniques used in diagnosis of hiatus hernia, jejunal ulcer, diverticulum, and papilla of the colon, with special attention to intravenous cholangiography; and a practical demonstration of laboratory procedures. Information may be obtained from the Secretary of the Frank E. Bunts Educational Institute, 2020 E. 93rd St., Cleveland 6.

OKLAHOMA

Personal.—The citizens of Blair and the surrounding area held an all-day celebration in tribute to Dr. Robert Z. Taylor on his 71st birthday. Dr. Taylor has been practicing in Blair since 1909.

Meeting of Clinical Society of Oklahoma City.—The 25th annual conference of the Oklahoma City Clinical Society will convene Oct. 24-27 at the Biltmore Hotel. Dr. Elmer Hess, Erie, Pa., President, American Medical Association, will deliver the banquet address Monday. Other guest lecturers are: Drs. James H. Allen and Theodore A. Watters, New Orleans; Edward P. Cawley, Charlottesville, Va.; Richard V. Ebert, Little Rock, Ark.; Keith S. Grimson, Durham, N. C.; John R. Hannan, Cleveland; Arild E. Hansen, Galveston, Texas; Carl P. Huber and Edward B. Smith, Indianapolis; Raymond J. Jackman, Rochester, Minn.; Emanuel M. Papper, New York; Homer E. Prince, Houston, Texas; Clyde L. Randall, Buffalo; Lowell A. Rantz, San Francisco; Dana M. Street, Memphis, Tenn.; and Everett D. Sugarbaker, Jefferson City, Mo. The sessions will include a clinicopathological conference, general assembly, round-table luncheons, a smoker, and dinner meetings. The registration fee of $20 includes all these features. For information address: Executive Secretary, 503 Medical Arts Bldg., Oklahoma City.

PENNSYLVANIA

Medical Examiner System.—As the final step in establishing the medical examiner system in Philadelphia, where nonmedical personnel have previously held the post of coroner, the Philadelphia Department of Public Health has announced plans to fill the position of medical examiner with a physician trained in pathology and forensic medicine. Recent legislation of the Philadelphia City Council defined the post as one responsible to the department of public health and enabled the health department itself to set the requirements for Civil Service appointment to the position.

Philadelphia

Geriatrics Conference.—The Home for the Jewish Aged, 5301 Old York Rd., will sponsor the first annual medical symposium on clinical aspects of the aging process, with special reference to neurology, psychiatry, nutrition, and cardiology, Oct. 23, 10 a. m.-4 p. m. Dr. Nathan Blumberg, medical director of the home, will serve as chairman. The following panels will be presented: (1) Neurology and Psychiatry, Drs. Matthew T. Moore and Maurice E. Linden, Philadelphia, and Abraham M. Rabiner, Brooklyn, N. Y.; (2) Nutrition, Drs. Robert S. Goodhart, New York, Donald M. Watkin, Staten Island, N. Y., and Hertha K. Sorter, Chicago; and (3) Cardiology, Drs. James B. Donaldson, Philadelphia, Raymond Harris, Albany, N. Y., and Simon Dack, New York. Luncheon will be served at 1 p. m. Physicians are cordially invited.

Pemberton Lecture on Rheumatoid Disease.—The fifth annual Dr. Ralph Pemberton Memorial Lecture, "The Nature of Rheumatoid Disease," will be delivered by Dr. Metro A. Ogryzlo, assistant professor of medicine, University of Toronto Faculty of Medicine, Toronto, Canada, under the sponsorship of the eastern Pennsylvania chapter of the Arthritis and Rheumatism Foundation and the Philadelphia Rheumatism Society Oct. 27, 8:30 p. m., at the Philadelphia County Medical Society, 301 S. 21st St. A reception and dinner (subscription $6) will be held at 6 p. m. Physicians may place reservations through Dr. William J. Somerville, Chairman, % Arthritis and Rheumatism Foundation, John Bartram Hotel, Philadelphia 7. Formal credits will be allowed for the lecture by the Academy of General Practice. The public is invited.

VERMONT

New Department of Preventive Medicine.—The University of Vermont College of Medicine, Burlington, announces the Commonwealth Fund of New York City has approved a project for the establishment of a new department of preventive medicine and for the development of a Regional Medical Needs Project. The project is to run four years, beginning Feb. 1, 1956. Dr. Leon R. Lezer, assistant professor of preventive medicine at the college, is chairman of the 16-member committee, formed to consider the rural medical needs of Maine, New Hampshire, and Vermont. The new department, consisting of a sociologist, medical social worker, public health nurse, health educator, statistician, and secretarial help, will be "the nucleus that will develop a teaching program in comprehensive medical care." It will also be a primary function of the staff to "act as consultants on request to rural areas in Maine, New Hampshire, and Vermont in studying local medical needs."

Serving on the committee with Dr. Lezer are commissioners of health, medical society officers, and members of medical college faculties from Vermont, New Hampshire, and Maine.

WEST VIRGINIA

Personal.—Dr. Ralph W. Ryan, Morgantown, has accepted appointment as civilian consultant in ophthalmology to the National Institutes of Health at Bethesda, Md., where he will do research in the control of eye diseases. He will, however, continue the practice of his specialty in Morgantown.

State Medical Election.—Dr. Athey R. Lutz, Parkersburg, was recently elected president of the West Virginia State Medical Association; Dr. E. Lyle Gage, Bluefield, first vice-president (reelected); Dr. Charles A. Hoffman, Huntington, second vice-president; and Dr. T. Maxfield Barber, Charleston, treasurer (reelected). The next annual meeting will be held at the Greenbrier Aug. 23-25, 1956.

WISCONSIN

Course on Radioisotopes.—A course for nonradiologists on the application of radioisotopes in clinical medicine is being offered on four consecutive Thursday afternoons, beginning Oct. 20, 10 a. m., at Marquette University School of Medicine, Milwaukee. The course is under the direction of Dr. Irving I. Cowan, director of the department of isotopes and assistant clinical professor of radiology. Tuition is $20 for the eight-hour course.

GENERAL

Meeting of Industrial Council.—At its annual meeting at the Rensselaer Polytechnic Institute in Troy, N. Y., Oct. 27-29, the Industrial Council, a national forum of educators and American industry, will have as its subject "The Pharmaceutical Industry." The principal speakers will include Pierre A. deTarnowsky, Mead Johnson & Company, Evansville, Ind.; Dr. Theodore G. Klumpp, Winthrop-Stearns, Inc., New York; Dr. Raymond M. Rice, Eli Lilly and Company, Indianapolis; and Ernest H. Volwiler, Ph.D., Abbott Laboratories, North Chicago, Ill.

Western Psychiatric Convention.—The first Western Divisional Meeting of the American Psychiatric Association will be held in San Francisco Oct. 27-30 as a joint meeting with the West Coast psychoanalytic societies. Papers on psychosomatic medicine, psychophysiological response to stress, use of reserpine and chlorpromazine, child psychiatry, group therapy, and teaching of psychiatry have been scheduled. Dr. William G. Barrett, San Francisco, president-elect, American Psychoanalytic Association, will give the academic lecture. The Northern California Psychiatric Society is the host society of the convention. Its newly elected officers are: Dr. Alfred Auerback, San Francisco, president; Dr. William R. Sheehy, Berkeley, vice-president; and Dr. Thomas A. Gonda, San Francisco, secretary-treasurer.

Association of Medical Colleges.—The 66th annual meeting of the Association of American Medical Colleges will be held at the New Ocean House, Swampscott, Mass., Oct. 24-26. The meeting will open Monday with the introduction of new deans. Reports on experiments in medical education will be made Monday and Tuesday afternoons. The following symposium on compensation of faculties of clinical departments will be presented Wednesday morning:

The Full-Time Plan at the University of Chicago, Lowell T. Coggeshall, Chicago.
The Private Diagnostic Clinic at Duke University, Wilburt C. Davison, Durham, N. C.
The University of Virginia Plan, Thomas H. Hunter, Charlottesville, Va.
The University of Iowa Plan, Norman B. Nelson, Iowa City.
The Harvard University Plan, George Packer Berry, Boston.

Meeting of Parenteral Drug Association.—The Parenteral Drug Association will hold its annual meeting Oct. 25-27 at the Hotel New Yorker in New York City. The sessions will open with "Changes Made in the U. S. P. XV Affecting Parenterals" by Lloyd C. Miller, Ph.D., U. S. Pharmacopeia, New York. "Physician Preference in Types of Parenteral Products" will be discussed by Dr. Herbert S. Kupperman, New York University College of Medicine, New York. Dr. Arnold J. Lehman, Food and Drug Administration, Washington, D. C., will present "Pharmacological Testing of New Parenterals." Round-table discussions have been scheduled on the U. S. P., 15th revision, sterility tests and on a program of collaborative research. Dr. Austin Smith, Editor of THE JOURNAL, guest of honor and speaker at the banquet, will discuss "Trends in Drug Evaluation."

Meeting of Gastroenterologists.—The second annual convention of the American College of Gastroenterology Oct. 24-26 at the Shoreland Hotel, Chicago, will be followed by a course in postgraduate gastroenterology Oct. 27-29. Attendance at the course will be limited to those who have paid the matriculation fee. Dr. Lynn A. Ferguson, Grand Rapids, Mich., president, will preside over the first scientific session Monday morning. Dr. Martin E. Rehfuss, Philadelphia, will be the speaker at the luncheon, 12:30 p. m. Monday (sponsored by Burton, Parsons & Company; admission by card only). Tuesday at 2 p. m. Dr. Clifford J. Barborka, Chicago, will moderate a panel discussion on peptic ulcer. Participants include Dr. H. Marvin Pollard, Ann Arbor, Mich., and Drs. Robert B. Lewis, E. Clinton Texter Jr., and Walter W. Carroll, all of Chicago. The banquet will be held at 7:30 p. m. Tuesday. More than 29 invited speakers will participate in the scientific sessions.

Anesthesiologists Meet in Boston.—The American Society of Anesthesiologists will hold its annual session at the Hotel Statler, Boston, Oct. 29-Nov. 2. The sessions will open Monday morning with panel symposiums on the endocrine factors in response to anesthesia and surgery. Other panel symposiums will include "The Effects of Anesthetics on the Circulatory Dynamics," "Hypothermic Anesthesia," "What Are the Causes of Death Relative to Anesthesia and Surgery?" and "What Influence Does the Anesthetic Agent Have on the Mortality Rate?" Monday at 8 p. m. there will be an informal meeting to discuss problems related to electroencephalography in anesthesia and to show records of the current investigations in this field. At a historical session Wednesday morning Dr. Albert M. Betcher, New York, will present "The Jubilee Year of Organized Anesthesia," and Dr. F. A. Duncan Alexander, Iowa City, will have as his topic, "James Leonard Corning and the Origins of Spinal Analgesia and Anesthesia."

Symposium on Tuberculosis in Childhood.—The National Jewish Hospital, Denver, will present a Symposium on Tuberculosis in Infancy and Childhood Nov. 9-13. No registration fee will be required. Applications will be considered in order of their receipt by the executive chairman, Dr. Gardner Middlebrook, Denver. Dr. Rene J. Dubos, New York, moderator for the opening session, will present "The Problem," which will be followed by "Historical Comments" by Dr. Bela Schick, New York, and "Morphology of Tuberculous Lesions" by Dr. Kornel L. Terplan, Buffalo. Some 24 presentations will be made, including:

Immunopathology of Tuberculosis, Sidney Raffel, Menlo Park, Calif.
Dynamics of Antituberculous Chemotherapy, Walsh McDermott, New York.
Unusual Cases of Tuberculosis, Ralph V. Platou, New Orleans.
Clinical Aspects of the Natural History of Tuberculosis in Infants and Children, Edith H. Lincoln, New York.
Correlation of in Vitro Sensitivity of M. Tuberculosis with Clinical Response of Patient to Therapy, Hattie E. Alexander, New York.
Management of Special Problems in the Chemotherapy of Tuberculosis in Infants and Children, Jose E. Sifontes, Syracuse, N. Y.

Annual Session on Surgery of Trauma.—The American Association for the Surgery of Trauma will hold its 15th annual session Oct. 27-29 at the Drake Hotel, Chicago. The closing presentation, the presidental address by Dr. Robert H. Kennedy, New York, will be preceded by a symposium (Discussion of Disability Evaluation by Members of the Disability Evaluation Committee of the American Medical Association), presented by Drs. Alexander P. Aitken, Brookline, Mass.; Alfred H. Whittaker, Detroit; Henry H. Kessler, Newark, N. J. (by invitation); and Earl D. McBride, Oklahoma City (by invitation). The program of 40 papers includes 39 invited participants. A cocktail hour at 7 p. m. Friday will precede the annual banquet (black tie preferred), at which Dr. Eric Oldberg, professor of neurology, and neurological surgery, University of Illinois College of Medicine, Chicago, will have as his topic "Inside a Symphony Orchestra." Dr. Oldberg is president of the Chicago Orchestral Association. Ladies and guests are invited to the annual dinner.

Congress of Neurological Surgeons.—The fifth annual meeting of the Congress of Neurological Surgeons will convene at the Hotel Statler, Los Angeles, Oct. 27-29. Dr. Carl W. Rand, University of Southern California School of Medicine, Los Angeles, will present "Notes on Pituitary Tumors," "Histological Changes of the Injured Brain with Clinical Applications," and "Brain Tumors Complicating Pregnancy and Spontaneous Subarachnoid Hemorrhage Occurring in Noneclamptic Pregnancy." Other guest speakers are: Dr. H. Russell Meyers, Iowa City; Dr. John E. Webster, Detroit; Dr. William H. Sweet, Boston; Dr. Cyril B. Courville, Dr. Johannes M. Nielsen, Dr. Lawrence H. Arnstein, Dr. Richard A. Koons, and Horace W. Magoun, Ph.D., Los Angeles; and Dr. Robert H. Pudenz, Dr. James G. Golseth, and Anthonie Van Harreveld, Ph.D., Pasadena, Calif. Dr. Golseth will conduct a postgraduate course on electromyography on Wednesday. Symposiums have been scheduled on neurophysiology, carotid artery thrombosis, and hypothermia and hibernation in neurosurgery. The banquet Thursday will be preceded by cocktails, 6:30 p. m. On Oct. 31 the congress will hold a joint meeting with the Sociedad Mexicana de Cirugia Neurologica in Mexico City, where a symposium will be presented on cysticercosis of the central nervous system.

Meeting of Gerontological Society.—The eighth annual meeting of the Gerontological Society will be held in the Sheraton-Belvedere Hotel, Baltimore, Oct. 27-29. Dr. Frederic D. Zeman, New York, will serve as chairman for the first general session Thursday morning, which will have as its topic "Basic Considerations—Medical and Social Problems of the Aging and the Aged." Dr. Edward L. Bortz, Philadelphia, will be chairman of the second general session, Friday morning, when the subject will be "Whither Gerontology? Current Research Needs." The section on clinical medicine will meet jointly with the Maryland Academy of General Practice Thursday afternoon to discuss "Everyday Problems in the Care of the Elderly." Friday afternoon that section will hold a joint meeting with the Commission on Chronic Illness to consider "Old Age and Chronic Illness." Thursday afternoon staff members of the National Institute of Mental Health, National Institutes of Health, Bethesda, Md., will present a symposium, "The National Institute of Mental Health and Problems of Aging," for the section on psychological and social sciences. The society will be guests of the Medical and Chirurgical Faculty of the State of Maryland and the Baltimore City Medical Society at an evening session Thursday, at which an address, "Education for Gerontology," will be delivered by Dr. Frederick C. Swartz, East Lansing, Mich.

Gulf Coast Clinical Society.—The Gulf Coast Clinical Society, composed of physicians from southern Alabama, southern Mississippi, and northwest Florida, will hold its 15th annual meeting at the San Carlos Hotel, Pensacola, Fla., Oct. 27-28. Presentations by out-of-state speakers include:

Mechanism of Action of the Antibiotic Drugs, John C. Krantz Jr., Baltimore.
Gyne-Chiatry, William K. Keller, Louisville, Ky.
Fever of Unknown Origin, Max Michael Jr., New York.
Angiocardiography, Jarrell E. Miller, Dallas, Texas.
Tumors Primary in the Neck, Grant E. Ward, Baltimore.
Mechanisms Responsible for Recurrent Bronchopulmonary Infection, Edwin R. Levine, Chicago.
New Light on the Etiology of Gastric and Duodenal Ulcer, Lester R. Dragstedt, Chicago.

At luncheon, Thursday 12:30 p. m., Drs. Ward, Levine, and Krantz will conduct a round-table discussion, "Etiology and Treatment of Bronchiogenic Carcinoma." A cocktail party, 6:30 p. m., will precede the banquet at the Pensacola Country Club (courtesy of Van Antwerp's Surgical Supply, Inc., Mobile, Ala.). The sessions will end with the presentation of a clinicopathological conference Friday, 11:20 a. m., by Drs. Michael, Dragstedt, and Miller, and Dr. W. A. D. Anderson, professor of pathology, University of Miami School of Medicine, Coral Gables, Fla.

Surgeons Meet in Chicago.—The American College of Surgeons will hold its clinical congress Oct. 31-Nov. 4 at the Conrad Hilton Hotel, Chicago. Panel discussions will be held on surgery of the thyroid, parenteral therapy, carcinoma of the breast, surgery in patients with cardiac disease, surgery and anesthesia, benign lesions of the pancreas, and surgery of the colon. The Monday afternoon session will open with a clinicopathological conference. During the general sessions, symposiums will be presented on trauma, cancer, new or unusual problems in surgery, and graduate training in surgery and the surgical specialties. The general sessions will close with a discussion "What's New in Surgery?" based on papers presented during the forum on Fundamental Surgical Problems. The 10th Martin Memorial Lecture, "Current Dilemmas of Doctors and Others," will be delivered Monday evening by Grayson L. Kirk, Ph.D., New York, president of Columbia University. The oration on trauma will be made Thursday afternoon by Dr. Frank B. Berry, Washington, D. C., assistant secretary of defense, whose subject will be "Mass Casualties." Dr. Warren H. Cole, Chicago, will be installed as president of the college on Friday evening, when he will speak on "Surgical Philosophy Old and New." During the congress, operations performed at the University of Illinois Research and Educational Hospitals will be televised in color. Questions from the audience will be relayed to, and answered by, the operating team, while the operation is in progress.

Society News.—Newly elected officers of the **American Association of Railway Surgeons** include Dr. Richard A. Sutter, St. Louis, president; Dr. Harold A. Spilman, Ottumwa, Iowa, president-elect; Drs. Joseph F. Prinzing, Denver, Ernest Colli, New Orleans, and Lloyd A. Hamilton, Lambertville, N. J., vice-presidents; Dr. Theodore L. Hansen, Chicago, treasurer; Dr. Chester C. Guy, Chicago, secretary; Dr. James K. Stack, Chicago, recorder; and Mr. H. S. Dewhurst, Chicago, assistant secretary-treasurer.——Officers of the newly organized **Society for Research on the Reticuloendothelial System** include: Dr. Charles A. Doan, Columbus, Ohio, president; Dr. Leon O. Jacobson, Chicago, vice-president; and Dr. John H. Heller, Ridgefield, Conn., executive secretary. Members of the group are specialists in internal medicine, microbiology, endocrinology, immunology, nutrition, and radiology. The membership represents more than 100 institutions of learning and hospitals in the United States, Europe, South America, and the Middle East. Its national headquarters are in Ridgefield, Conn.——The **American Board of Clinical Chemistry, Inc.,** which held its annual meeting at Henry Ford Hospital, Detroit, May 20-21, announces that a complete Directory of Certified Clinical Chemists, obtainable from the secretary-treasurer, Dr. Oliver H. Gaebler, Henry Ford Hospital, Detroit 2, will be sent without charge to hospital departments or other laboratories that engage in clinical chemistry.——William H. Feldman, D.V.M., Rochester, Minn., has been elected chairman of the advisory medical board of the **Leonard Wood Memorial (American Leprosy Foundation),** succeeding Dr. Howard T. Karsner, Washington, D. C., who has been made a special consultant to the board. Other new members of the board are Dr. Fred L. Soper, Washington, D. C., director, Pan American Sanitary Bureau; Dr. Thomas B. Turner, Baltimore; and Dr. Thomas H. Weller, Boston.——Newly elected officers of the **American College of Chest Physicians** include: Dr. James H. Stygall, Indianapolis, president; Dr. Herman J. Moersch, Rochester, Minn., president-elect; Dr. Burgess L. Gordon, Philadelphia, first vice-president; Dr. Donald R. McKay, Buffalo, second vice-president; Dr. Charles K. Petter, Waukegan, Ill., treasurer; and Dr. Albert H. Andrews, Chicago, assistant treasurer. The next annual meeting will be held at the Sherman Hotel, Chicago, June 7-10, 1956. ——At the annual meeting of the **Aero Medical Association** Dr. Kenneth E. Dowd, Montreal, Canada, was elected president; Dr. Jan H. Tillisch, Rochester, Minn., president-elect; Capt. Ashton Graybiel (MC), U. S. N., Pensacola, Fla., first vice-president, to succeed Dr. Tillisch as president-elect next year; Dr. Thomas H. Sutherland, Marion, Ohio, secretary-treasurer (reelected). The official history of the association, titled "Doctors in the Sky" by Dr. Robert J. Benford, Washington, D. C., was publicly released on the first day of the meeting. The following awards were made during the convention: Theodore C. Lyster award for achievement in the general field of aviation medicine to Gen. Otis O. Benson Jr., Washington, D. C.; the Raymond F. Longacre award to Dr. Roy R. Grinker, Chicago; and the Arnold D. Tuttle award to Fred A. Hitchcock, Ph.D., Columbus, Ohio. The 27th annual meeting of the association will be held at the Drake Hotel in Chicago, April 16-18, 1956.—— At the annual meeting of the **United States-Mexico Border Public Health Association** in Mexico City, the following officers were elected for 1956: Mr. George W. Marx, Phoenix, Ariz., president; Dr. Guillermo Soberanes, Hermosillo, Sonora, president-elect; Dr. Esteban de Essesarte, Agua Prieta, Sonora; Dr. Austin W. Matthis, El Centro, Calif., vice-president; and Dr. Sidney B. Clark, El Paso, Texas, secretary-treasurer.

FOREIGN

Symposium on Vitamin B_{12}.—Plans are being made for the first European symposium on vitamin B_{12} to be held the last week of May, 1956, in Hamburg, Germany. The physiology and the clinical application of vitamin B_{12} in human and veterinary medicine will be discussed. For information, write to Doz. Dr. H. Bauer, Nervenklinik, Hamburg-Eppendorf, Germany.

International Professional Union.—At a meeting in Paris, France, in June the official delegates of the National Professional Societies of Gynecologists and Obstetricians of the World founded the International Professional Union, of which Prof. Jean Ravina, Paris, is president, succeeding the president-founder, Dr. Maurice Fabre of Paris. The next international meeting will be in Madrid, Spain, Sept. 28-29, 1956. For information write to the secretary-general, Dr. Jacques Courtois, 1 rue Racine, St.-Germain-en-Laye (S. & O.), France.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1955 Clinical Meeting, Boston, Nov. 29-Dec. 2.

1956 Annual Meeting, Chicago, June 11-15.

1956 Clinical Meeting, Seattle, Nov. 27-30.

1957 Annual Meeting, New York, June 3-7.

National Medical Public Relations Conference, Hotel Statler, Boston, Nov. 28. Mr. Leo F. Brown, 535 N. Dearborn St., Chicago 10, Director.

American Academy of Dermatology and Syphilology, Palmer House, Chicago, Dec. 3-8. Dr. James R. Webster, 55 East Washington St., Chicago 2, Secretary.

American Academy of Neurological Surgery, The Homestead, Hot Springs, Va., Oct. 27-29. Dr. Eben Alexander Jr., Bowman Gray School of Medicine, Winston-Salem, N. C., Secretary.

American Academy of Obstetrics and Gynecology, Conrad Hilton Hotel, Chicago, Dec. 13. Dr. C. Paul Hodgkinson, 116 South Michigan Blvd., Chicago, Secretary.

American Association of Blood Banks, Palmer House, Chicago, Nov. 19-21. Miss Marjorie Saunders, 3707 Gaston Ave., Dallas 10, Texas, Secretary.

American Association of Medical Clinics, Curtis Hotel, Minneapolis, Nov 4-6. Dr. Edwin P. Jordan, Box 58, Charlottesville, Va., Executive Director.

American Association for the Surgery of Trauma, Drake Hotel, Chicago, Oct. 27-29. Dr. James K. Stack, 700 N. Michigan Blvd., Chicago 11, Secretary.

American Clinical and Climatological Association, The Homestead, Hot Springs, Va., Oct. 31-Nov. 2. Dr. M. N. Fulton, 124 Waterman St., Providence 6, R. I., Secretary.

American College of Anesthesiologists, Hotel Statler, Boston, Nov 4-5. Mr. John H. Hunt, 188 West Randolph St., Chicago 1, Executive Secretary.

American College of Cardiology Interim Meeting, Hotel Claridge, Memphis, Tenn., Nov. 10-12. Dr. Philip Reichert, Empire State Bldg., New York 1, Secretary.

American College of Gastroenterology, Hotel Shoreland, Chicago, Oct. 24-26. Dr. Joseph Shaiken, 33 West 60th St., New York 23, Secretary.

American College of Surgeons, Conrad-Hilton Hotel, Chicago, Oct. 31-Nov. 4. Dr. Michael L. Mason, 40 East Erie St., Chicago 11, Secretary.

American League Against Epilepsy, Roosevelt Hotel, New York, Dec. 8. Dr. Peter Kellaway, Baylor University College of Medicine, Houston 25, Tex., Secretary.

American Medical Women's Association, Board Meeting, Netherlands-Plaza Hotel, Cincinnati, Nov. 11-13. Miss Lillian T. Majally, 1790 Broadway, New York 19, Executive Secretary.

American Public Health Association, Muehlebach Hotel and Municipal Auditorium, Kansas City, Mo., Nov. 14-18. Dr. Reginald M. Atwater, 1790 Broadway, New York 19, Executive Secretary.

American School Health Association, Hotel President, Kansas City, Mo., Nov. 14-18. Dr. A. O. DeWeese, 515 East Main St., Kent, Ohio, Secretary.

American Society of Anesthesiologists, Hotel Statler, Boston, Oct. 29-Nov. 3. Dr. J Earl Remlinger Jr., Room 1101, 188 W. Randolph St., Chicago 1, Secretary.

American Society for the Study of Arteriosclerosis, Hotel Sheraton, Chicago, Nov. 6-7. Dr. O. J. Pollak, P.O. Box 228, Dover, Del., Secretary.

American Society of Tropical Medicine and Hygiene, Somerset Hotel, Boston, Nov. 2-5. Dr. John E. Larsh Jr., Dept. of Parasitology, School of Public Health, Chapel Hill, N. C., Secretary.

Association of American Medical Colleges, New Ocean House, Swampscott, Mass., Oct. 24-26. Dr. Dean F. Smiley, 185 N. Wabash Ave., Chicago 1, Secretary.

Association of Military Surgeons of the U. S., Hotel Statler, Washington, D. C., Nov. 7-9. Colonel Robert E. Bitner, 1726 I St. N.W., Washington 6, D. C., Secretary.

Association for Research in Nervous and Mental Diseases, Hotel Roosevelt, New York, Dec. 9-10. Dr. Clarence C. Hare, 710 West 168th St., New York 32, Secretary.

Association of State and Territorial Health Officers, Hotel Washington, Washington, D. C., Nov. 6-12. Dr. Franklin D. Yoder, State Board of Health, Cheyenne, Wyo., Secretary.

Central Society for Clinical Research, Drake Hotel, Chicago, Nov. 4-5. Dr. Robert H. Ebert, 950 East 59th St., Chicago 37, Secretary.

Congress of Neurological Surgeons, Hotel Statler, Los Angeles, Oct. 27-29. Dr. Philip D. Gordy, 1007 Delaware Ave., Wilmington, Del., Secretary.

Eastern Section, American Federation for Clinical Research, Hotel Warwick and College of Physician's Building, Philadelphia, Dec. 2-3. Dr. Charles R. Shuman, Temple Univ. Hospital, Broad and Ontario Sts., Philadelphia 40, Chairman.

Gerontological Society, Sheraton-Belvedere Hotel, Baltimore, Oct. 27-29. Dr. Nathan W. Shock, Baltimore City Hospitals, Baltimore 24, Secretary.

Gulf Coast Clinical Society, Pensacola, Fla., Oct. 27-28. Dr. Barkley Beidleman, 1750 N. Palafox St., Pensacola, Fla., Secretary.

Inter-Society Cytology Council, Statler Hotel, Cleveland, Nov. 11-12. Dr. Paul F. Fletcher, 634 N. Grand Blvd., St. Louis 3, Secretary.

Interstate Post Graduate Medical Association of North America, Municipal Auditorium, Milwaukee, Nov. 14-17. Mr. Roy T. Ragatz, 207 Gay Bldg., Madison 3, Wis., Executive Director.

Medical Society Executives Conference, Parker House, Boston, Nov. 27. Mr. H. Martin Baker, 1102 South Hillside, Witchita 17, Kansas, Secretary.

Midwestern Section of American Federation for Clinical Research, Thorne Hall, Northwestern University, and Drake Hotel, Chicago, Nov. 3. Dr. Robert J. Glaser, Barnes Hospital, St. Louis 10, Secretary.

National Association for Mental Health, Indianapolis, Nov. 4-6. Mr. Robert M. Heininger, 1790 Broadway, New York 19, Director.

New England Health Education Association, Boston, Dec. 2. Miss Wyntha Tompkins, Middlesex Health Association, Essex, Mass., Secretary.

Oklahoma City Clinical Society Conference, Oklahoma City, Oct. 24-27. Dr. Charles E. Leonard, 512 Medical Arts Bldg., Oklahoma City 2, Secretary.

Omaha Mid-West Clinical Society, Hotel Paxton, Omaha, Oct. 24-27. Mrs. Anne K. Ramsey, 1031 Medical Arts Bldg., Omaha 2, Executive Secretary.

Puerto Rico Medical Association, Santurce, Dec. 7-11. Dr. Luis R. Guzman-Lopez, Box 9111, Santurce, Secretary.

Radiological Society of North America, Palmer House, Chicago, Dec. 11-16. Dr. Donald S. Childs, 713 E. Genesee St., Syracuse 2, N. Y., Secretary.

Regional Meetings, American College of Physicians:

- Louisville, Ky., Nov. 5. Dr. Sam A. Overstreet, 332 West Broadway, Louisville, Ky., Governor.
- Newark, N. J., Nov. 9. Dr. Edward C. Klein Jr., 6 S. Kingsman Rd., South Orange, N. J., Governor.
- Detroit, Dec. 3. Dr. H. Marvin Pollard, 1313 East Ann St., Ann Arbor, Mich., Governor.
- Hot Springs, Ark., Dec. 3. Dr. A. A. Blair, 100 S. 14th St., Ft. Smith, Ark., Governor.
- Winston-Salem, N. C., Dec. 8. Dr. Elbert Persons, Duke Hospital, Durham, N. C., Governor.

Society of Clinical Surgery, Hotel Roosevelt, New Orleans, Nov. 11-12. Dr. Frank F. Allbritten Jr., University of Kansas Medical Center, Kansas City, Mo., Secretary.

Southern Medical Association, Shamrock Hotel, Houston, Texas, Nov. 14-17. Mr. V. O. Foster, 1020 Empire Bldg., Birmingham 3, Ala., Secretary-Manager.

Southern Society of Cancer Cytology, Houston, Texas, Nov. 14-17. Dr. J. Ernest Ayre, 1155 N.W. 14th St., Miami, Fla., Secretary.

Southern Surgical Association, The Homestead, Hot Springs, Va., Dec. 6-8. Dr. George G. Finney, 2947 St. Paul St., Baltimore 18, Secretary.

Southwestern Medical Association, Westward Ho Hotel, Phoenix, Ariz., Nov. 16-18. Dr. Celso C. Stapp, 800 Montana St., El Paso, Texas, Secretary.

State Medical Journal Conference, Chicago, Nov. 7-8. Mr. Alfred J. Jackson, 535 N. Dearborn St., Chicago 10, Director.

The Constantinian Society, Sheraton-Park Hotel, Washington, D. C., Oct. 26-29. Dr. C. F. Shook, P. O. Box 1035-36, Toledo 1, Ohio, Secretary.

Western Orthopedic Association, The Reef, Honolulu, Hawaii, Nov. 7-10. Dr. Ivar J. Larsen, 1133 Punchbowl, Honolulu 13, Hawaii, Secretary.

Western Society of Electro-Encephalography, Westward Ho Hotel, Phoenix, Ariz., Nov. 10-12. Dr. Sylvester N. Berens, 902 Boren Ave., Seattle, Secretary.

Western Surgical Association, Olympic Hotel, Seattle, Dec. 1-3. Dr. John T. Reynolds, 612 N. Michigan Blvd., Chicago 11, Secretary.

FOREIGN AND INTERNATIONAL

Conference of International Union for Health Education of the Public, Rome, Italy, Apr. 27-May 5, 1956. Mr. Lucien Viborel, 92 rue St. Denis, Paris 1er, France, Secretary-General.

Congress of International Association of Limnology, Helsinki, Finland, July 26-Aug. 7, 1956. For information address: Dr. H. Luther, Snellmansgatan 16 C 36, Helsinki, Finland.

Congress of International Association of Logopedics and Phoniatrics, Barcelona, Spain, Sept. 3-7, 1956. Dr. J. Perello, Provenza 319, Barcelona 9, Spain, Secretary-General.

Congress of International Society of Hematology, Hotel Statler, Boston, Mass., U.S.A., Sept. 3-8, 1956. Dr. W. C. Moloney, 39 Bay State Road, Boston, Mass., U.S.A., Secretary.

Congress of International Society for Research on Anesthesia, Miami Beach, Fla., U.S.A., Mar. 12-15, 1956. For information write: Dr. R. J. Whitacre, 13951 Terrace Road, Cleveland 12, Ohio, U. S. A.

Congress of Latin Society of Ophthalmology, Madrid, Spain, April 24-28, 1956. For information address: Dr. Costi, Montalban 3, Madrid, Spain.

European Congress of Allergology, Florence, Italy, May 1956. Prof. Umberto Serafini, Largo della Gancia 5, Rome, Italy, Secretary-General.

European Congress of Cardiology, Stockholm, Sweden, Sept. 10-12, 1956. Dr. Karl Erik Grewin, Sodersjukhuset, Stockholm, Sweden, General Secretary.

European Symposium on Vitamin B_{12}, Hamburg, Germany, May 1956. For information write: Doz. Dr. H. Bauer, Nervenklinik. Hamburg-Eppendorf, Germany.

International Academy of Pathology, Cincinnati, Ohio, U. S. A., April 24-25, 1956. Dr. F. K. Mostofi, Armed Forces Institute of Pathology, Washington 25, D. C., U. S. A., Secretary.

International Congress Against Alcoholism, Istanbul, Turkey, Sept. 10-15, 1956. For information address: International contre l'Alcoolisme, Case Gare 49, Lausanne, Switzerland.

International Congress of Allergology, Rio de Janeiro, Brazil, S. A., Nov. 6-13. Dr. Bernard N. Halpern, 197 boulevard St. Germain, Paris 7e, France, Secretary General.

International Congress of Anthropological and Ethnological Sciences, Philadelphia, Pa., U. S. A., Sept. 2-9, 1956. Dr. William N. Fenton, National Research Council, Division of Anthropology and Psychology, 2101 Constitution Avenue, Washington 25, D. C., U. S. A., Secretary-General.

International Congress on Diseases of the Chest, Cologne, Germany, Aug. 19-23, 1956. Mr. Murray Kornfeld, 112 East Chestnut St., Chicago 11, Illinois, U. S. A., Executive Director.

International Congress of Entomology, Montreal, Canada, Aug. 17-25, 1956. Mr. J. A. Downes, Science Service Bldg., Carling Ave., Ottawa, Ont., Canada, Secretary.

International Congress of Gastroenterology, London, England, July 18-21, 1956. Mr. Hermon Taylor, London Hospital, White Chapel, London E.1, England, Honorable Secretary.

International Congress for the History of Science, Florence and Milan, Italy, Sept. 3-10, 1956. Dr. M. L. Bonelli, Instituto di Ottica, Arcetri, Florence, Italy, Secretary-General.

International Congress of Hydatid Disease, Athens, Greece, Sept. 14-18, 1956. Prof. B. Kourias, Croix-Rouge Hellenique, 1 rue Mackenzie King, Athens, Greece, Secretary-General.

International Congress of Internal Medicine, Madrid, Spain, Sept. 19-23, 1956. Dr. J. C. De Oya and Dr. J. Gimena, Hostaleza No. 90, Madrid, Spain, Secretaries.

International Congress of International College of Surgeons, Palmer House, Chicago, Illinois, U. S. A., Sept. 9-13, 1956. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U. S. A., Secretary-General.

International Congress of International Society of Bronchoesophagology, Buenos Aires, Argentina, S. A., Oct. 28-29. Dr. Juan Carlos Arauz, Cangallo 4015, Buenos Aires, Argentina, S. A., Secretary General.

International Congress of Neo-Hippocratic Medicine, Montecatini, Terme, Italy, May 20-22, 1956. Dr. Valente, 41 Avenue Verdi, Montecatini Terme, Italy, Secretary-General.

International Congress of Paediatrics, Copenhagen, Denmark, July 22-27, 1956. Professor P. Plum, Rigshospitalet, Copenhagen, Denmark, President.

International Congress of Physical Medicine, Copenhagen, Denmark, August 20-24, 1956. Dr. B. Strandberg, Kobenhavns amts sygehus i Gentofte, Dept. of Rheumatology and Physical Medicine, Hellerup, Denmark, Honorable Secretary.

International Congress of Physiopathology of Animal Reproduction and Artificial Insemination, Cambridge, England, June 25-29, 1956. For information address: Dr. Joseph Edwards, Production Division, Milk Marketing Board, Thames Ditton, Surrey, England.

International Congress of Radiology, Mexico, D. F., Mexico, July 22-28, 1956. Dr. Jose Noriega, Tepic 126 (2e piso), Mexico, D. F. 7, Mexico, Secretary General.

International Congress of World Confederation for Physical Therapy, New York, New York, U. S. A., June 17-23, 1956. For information address: Miss Mildred Elson, American Physical Therapy Association, 1790 Broadway, New York 19, New York, U. S. A.

International General Medical Congress, University of Rosario Medical College, Rosario, Argentina, S. A., Nov. 7-12. Dean Jose Imhoff, Santa Fé 3100, Rosario, Argentina, S. A., Chairman.

International Genetics Symposium, Tokyo and Kyoto, Japan, Sept 6-12, 1956. For information address: Secretary, International Genetics Symposium, Science Council of Japan, Ueno Park, Tokyo, Japan.

International Physiological Congress, Brussels, Belgium, July 29-Aug. 5, 1956. For information address: Prof. J. Reuse, Faculte de Medicine et de Pharmacie, 115 Boulevard de Waterloo, Brussels, Belgium.

International Professional Union of Gynecologists and Obstetricians, Madrid, Spain, Sept. 28-29, 1956. Dr. Jacques Courtois, 1 rue Racine, St-Germain-en-Laye (S and O), France, Permanent International Secretary-General.

Latin American Congress of Pathology, Mexico, D. F., Mexico, Dec. 11-17. For information address: Laboratorio de Anatomia Patologica, Instituto N. de Cardiologia, Avenida Cuauhtemoc 300, Mexico 7, D. F., Mexico.

North Queensland Medical Conference, Cairns, North Queensland, Australia, June 25-30, 1956. Dr. W. R. Horsfall, P.O Box 672, Cairns, N.Q., Australia, Secretary.

Pan American Congress of Gastroenterology, Havana, Cuba, Jan. 20-27, 1956. For information address: Dr. Norberto M. Stapler, 1267 J. E. Uriburu, Buenos Aires, Argentine, S. A.

Pan American Congress of Ophthalmology, Santiago, Chile, S. A., Jan. 9-14, 1956. Dr. Rene Contardo, Huerfanos 930, Of. 74, Santiago, Chile, Secretary General.

Pan American Congress of Otorhinolaryngology and Bronchoesophagology, San Juan, Puerto Rico, March 8-12, 1956. Dr. C. E. Munoz MacCormick, Apartado 9111, Santurce, Puerto Rico, Secretary General.

Pan American Medical Women's Alliance, Santiago, Chile, March 6-13, 1956. For information address: Dr. Eva Cutright, 458 Beall Ave., Wooster, Ohio, U. S. A.

Venezuelan Congress of Medical Sciences, Caracas, Venezuela, S. A., Nov. 18-26. Dr. A. L. Briceno Rossi, Apartado 4412, Ofic. del Este, Caracas, Venezuela, S. A , Secretary General.

World Congress on Fertility and Sterility, Naples, Italy, May 18-26, 1956. For information address: Prof. G. Tesauro, S. Andrea della Dame, 19, Naples, Italy.

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: Various Centers. April 24-25 (Part II); June 19-20 (Parts I and II); September 4-5 (Part I). Candidates may file applications at any time but they must be received at least six weeks before the date of the examination for which application is made. New candidates should apply by formal registration; registered candidates may notify the board, indicating desired location, date and candidate number. Ex. Sec., Dr. John P. Hubbard, 133 South 36th St., Philadelphia 4.

BOARDS OF MEDICAL EXAMINERS

Alabama: *Examination.* Montgomery, June 19-21. Sec., Dr. D. G. Gill, State Office Bldg., Montgomery.

Arkansas:* *Examination.* Little Rock, Nov. 10-11. Sec., Dr. Joe Verser, Harrisburg.

California: *Oral and Clinical Examinations for Foreign Medical School Graduates.* San Francisco, Nov. 13. *Oral Examination for Reciprocity Applications.* San Francisco, Nov. 12. Sec., Dr. Louis E. Jones, Room 536, 1020 N St., Sacramento.

Colorado:* *Examination.* Denver, Dec. 6-7. Final date for filing application is Nov. 4. Exec. Sec., Mrs. Beulah H. Hudgens, 831 Republic Bldg., Denver 2.

Connecticut:* *Regular. Examination.* Hartford, Nov. 8-10. Sec., Dr. Creighton Barker, 160 St. Ronan St., New Haven. *Homeopathic.* Derby, Nov. 8-19. Sec., Dr. Donald A. Davis, 38 Elizabeth St., Derby.

Delaware: *Examination.* Dover, Jan. 10-12. *Reciprocity.* Dover, Jan. 19. Sec., Dr. Joseph S. McDaniel, Dover.

Florida:* *Examination.* Miami Beach, Nov. 20-21. Sec., Dr. Homer L. Pearson, 901 N. W. 17th St., Miami.

Idaho: *Examination and Reciprocity.* Boise, Jan. 9-11. Exec. Sec., Mr. Armand L. Bird, 364 Sonna Bldg., Boise.

Indiana: *Examination.* Indianapolis, June. Exec. Sec., Miss Ruth V. Kirk, 538 K. of P. Bldg., Indianapolis.

Iowa:* *Examination.* Des Moines, Dec. 5-7. Ex. Sec., Mr. Ronald V. Saf, State Office Bldg., Des Moines.

Kansas: *Examination and Endorsement.* Topeka, Dec. 7-8. Sec., Dr. Lyle F. Schmaus, New Brotherhood Bldg., Kansas City.

Kentucky: *Examination.* Louisville, Dec. 5-7. Asst. Sec., Mr. R. F. Dixon, 620 S. 3rd St., Louisville.

Maine: *Examination and Reciprocity.* Portland, Nov. 8-9. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

Maryland: *Examination.* Baltimore, Dec. 13-16. Exec. Sec., Miss Hannah A. McCarthy, 1215 Cathedral St., Baltimore 1.

Mississippi: *Reciprocity.* Jackson, December. Asst. Sec., Dr. R. N. Whitfield, State Board of Health, Jackson.

Nebraska:* *Examination.* Omaha, June 18-20. Director, Bureau of Examining Boards, Mr. Husted K. Watson, 1009 State Capitol Bldg., Lincoln.

New Mexico:* *Examination and Reciprocity.* Santa Fe, Nov. 21-22. Sec., Dr. R. C. Derbyshire, 227 E. Palace Ave., Santa Fe.

New York: *Examination.* Albany, Buffalo, New York City and Syracuse, Oct. 4-7. Sec., Dr. Stiles D. Ezell, 23 S. Pearl St., Albany.

North Carolina: *Reciprocity.* Asheville, Oct. 31. Sec., Dr. Jos. J. Combs, 716 Professional Bldg., Raleigh.

North Dakota: *Examination.* Grand Forks, Jan. 4-6. *Reciprocity.* Grand Forks, Jan. 7. Sec., Dr. C. J. Glaspel, Box 228, Grafton.

Ohio: *Examination.* Columbus, Dec. 15-17. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

Oklahoma:* *Examination.* Oklahoma City, June 5-6. Sec., Dr. E. F. Lester, 813 Braniff Bldg., Oklahoma City.

Pennsylvania: *Examination.* Philadelphia, January. Acting Sec., Miss Marguerite G. Steiner, Box 911, Harrisburg.

South Carolina: *Examination.* Columbia, Nov. 7. Sec., Mr. N. B. Heyward, 1329 Blanding St., Columbia.

South Dakota:* *Examination.* Sioux Falls, Jan. 17-18. Exec. Sec., Mr. John C. Foster, 300 First National Bank Bldg., Sioux Falls.

Texas:* *Examination and Reciprocity.* Galveston, Dec. 1-3. Sec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Fort Worth 2.

Virginia: *Examination.* Richmond, Dec. 7-9. *Reciprocity.* Richmond, Dec. 6. Final date for filing application is Nov. 21. Address the Secretary, 631 First St. S.W., Roanoke.

Wisconsin:* *Reciprocity and Examination.* Madison, Jan. 10-12; *Reciprocity,* Madison, Spring; *Reciprocity and Examination.* Milwaukee, July 10-12. Sec., Dr. Thomas W. Tormey, Jr., 1140 State Office Bldg., Madison.

Alaska:* On application. Sec., Dr. W. M. Whitehead, 172 South Franklin St., Juneau.

Guam: The Commission on Licensure will meet whenever a candidate appears or submits his credentials. Sec., Dr. John E. Kennedy, Agana.

Hawaii: *Examination.* Honolulu, Jan. 9-12. Sec., Dr. I. L. Tilden, 1020 Kapiolani, St., Honolulu.

Virgin Islands: *Examination and Endorsement.* St. Thomas, Nov. 8-9. Sec., Dr. Earle M. Rice, St. Thomas.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

District of Columbia: *Examination.* Washington, Oct. 24-25. Deputy, Mr. Paul Foley, 1740 Massachusetts Ave., N.W., Washington 6.

Florida: *Examination.* Gainesville, Nov. 5. Sec., Mr. M. W. Emmel, Box 340, Gainesville.

Oregon: *Examination.* Portland, Dec. 3; March 3; June 2, Sept. 8 and Dec. 1. Dr. Earl M. Pallett, Sec., State Board of Higher Education, Eugene.

South Dakota: *Examination.* Vermillion, Dec. 2-3. Sec., Dr. Gregg M. Evans, 310 E. 15th St., Yankton.

Wisconsin: Milwaukee, Dec. 3. Final date for filing application is Nov. 25. Madison, Apr. 7. Final date for filing application is Mar. 30. Sec., Dr. W. H. Barber, 621 Ransom St., Ripon.

Alaska: On application. Juneau or other towns in Territory as decided by Board. *Reciprocity.* On application. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

---

*Basic Science Certificate required.

MAGAZINE–TELEVISION REPORT

The following list of current medical articles in mass-circulation magazines and forthcoming network television programs on medical subjects is published each week only for the information of readers of The Journal. *Unless specifically stated, the American Medical Association neither approves nor disapproves of the articles and programs reported.*

TELEVISION

Monday, Oct. 24

NBC-TV, 11:30 a. m. EDT. "Medical and Health News with Howard Whitman," a segment of the "Home" program.

NBC-TV, 9 p. m. EDT. "Medic" presents "When I Was Young," a drama based on the problems of menopause and medicine's new methods of dealing with it.

ABC-TV, 9:30 p. m. EDT. "Medical Horizons" reports on the residency training program at Johns Hopkins Hospital, Baltimore.

Monday, Oct. 31

NBC-TV, 9 p. m. EST. "Medic" turns to recent history for its presentation on aviation medicine. Titled "The World So High," the drama tells how William Lovelace, Army doctor, parachuted from a plane eight miles above the earth to test the effects of high altitude on the human system.

MAGAZINES

Life, Oct. 10, 1955

"Heart Attack"

A detailed report on the cause and effect of a heart attack illustrated with anatomic drawings and photographs. The presentation also includes a profile on Dr. Paul Dudley White and a summary of research into the disease.

Woman's Home Companion, November, 1955

"The Epoch Approach to Child Development," by Dr. Milton J. E. Senn with Evan McLeod Wylie

The director of Yale's Child Study Center questions the "rigidities" of pediatric theories that try to match children to "growing-up timetables." He feels instead "that each child will have a mind all his own which will respond individually to the way in which he is nurtured, reared and educated."

Pageant, November, 1955

"You're Giving Yourself That Headache," by Henry Lee

The author says that several researchers have been working out a system of preventive therapy for headaches based on the theory that long-time sufferers "have made it a habit to get headaches regularly." A "headache preventive therapist" first helps the patient "lower the weight of tension being carried" and, with medication, "stiffens the trigger so that it will take more tension to go off." The article mentions Gynergen Dihydroergotamine (D.H.E.-45) and a "pill combination of caffein and ergot," all produced by Sandoz Pharmaceuticals.

Better Living, November, 1955

"Chart of Common Childhood Illnesses," compiled by Dr. Harry S. Altman

As part of a continuing series published under the supervision of the New York Academy of Medicine, the author lists common childhood ailments and gives data on cause, treatment, and prevention.

Family Circle, November, 1955

"Pity the Poor Snorer," by Frances Gibson Satterfield

"Can anything be done to prevent snoring? Medical papers at various times have recommended a number of remedial steps, at the same time admitting they are often ineffectual." The author summarizes ideas on the subject.

GOVERNMENT SERVICES

PUBLIC HEALTH SERVICE

Supply of Poliomyelitis Vaccine.—HEW Secretary, Marion B. Folsom, announced Oct. 2 that enough poliomyelitis vaccine has been released to give two injections to three-fourths of the nation's children in the 5-9 age group. He said definite predictions are not possible, but present indications are that enough vaccine will be released to give two injections to all the 15,903,000 children in this top priority group by Dec. 31. It would take about 32 million cc. to give every child in the 5-9 age group two injections. The National Institutes of Health, Public Health Service, has released 23,812,596 cc. since the program started in April. This leaves less than 9 million cc. needed to complete two injections for each child in this age group. Of the vaccine released so far, about 13 million cc. have been released to the National Foundation for Infantile Paralysis for its program of free vaccinations for second and third grade school children. About 10 million cc. have been released to states and territories under the voluntary control program, 53% of this going to commercial channels and 47% to public agencies.

Secretary Folsom pointed out that while production and clearance of the vaccine is being expedited, research continues to seek possible improvements in the vaccine testing and manufacturing processes. This research program is being done under the joint auspices of the National Foundation for Infantile Paralysis, the vaccine manufacturers, and scientists in medical schools and universities, and the Public Health Service and its technical advisory committee. He said that after the immediate needs of the 5-9 age group have been met, vaccine will be made available to other age groups most susceptible to poliomyelitis. The age group priority recommendations are made by the National Advisory Committee on Poliomyelitis Vaccine, which counsels the Department of Health, Education, and Welfare on matters of distribution and allocation. This committee will be convened soon to consider the next priority group.

Plans for Distribution of Free Poliomyelitis Vaccine.—Surgeon General Scheele announced on Sept. 28 the approval of plans submitted by 22 states and territories for use of federal funds to distribute free poliomyelitis vaccine. An additional 16 plans have been received from states and territories and are being reviewed. The states and territories with approved plans are Arizona, Colorado, Delaware, Kansas, Kentucky, Louisiana, Minnesota, Missouri, Nebraska, New York, North Carolina, North Dakota, Ohio, Oklahoma, South Dakota, Tennessee, Texas, Utah, Virginia, Wisconsin, Hawaii, and the Canal Zone. These states can start drawing immediately on $13,119,508 of the 30 million dollars that Congress appropriated for purchase and administration of vaccine.

Under the Poliomyelitis Assistance Act, all states are entitled to receive grants under a formula based on the cost of vaccine, the state's per capita income, and its population of children under 20, and pregnant women. Judging from the plans already approved, the poliomyelitis programs will be handled much the same as other state immunization programs, and plans will vary from community to community. Some counties and cities will hold public clinics; some will rely chiefly on private physicians; and many will make the vaccine available both in public clinics and to private physicians. In communities that lack local health departments, the program will be administered by the state health department or the local medical profession.

The federal law provides that states may determine methods of distributing the vaccine between public and commercial channels. In most states, some vaccine will be distributed through both channels and physicians will have some vaccine available from the public supply as well as from commercial outlets. Where the public vaccine is used in public programs, no means test can be used to limit the persons who are eligible for free vaccinations. The Public Health Service is responsible for allocating vaccine (as distinguished from funds) to states according to the percentage of children in an eligible age group who live in each state. State plans indicate an almost complete acceptance of the 5 to 9 age priority recommended by the National Advisory Committee on Poliomyelitis Vaccine.

Under the federal aid program, states have an option of buying their own vaccine or of obtaining federally purchased vaccine in lieu of cash. Early plans indicate that most of them plan to buy their own vaccine. They will receive their federal payments in monthly installments. States also have the option of using all of their share of the 30 million dollars for purchase of the vaccine or of reserving up to one-sixth for administrative costs, such as cost of conducting public clinics. Many of the states have indicated that they will spend all of their share for vaccine purchase.

Grants for Research in Hospital Services.—A program of grants for research in hospital services and facilities has been initiated by the Public Health Service. Grants from funds appropriated to the Department of Health, Education, and Welfare will be made to qualified nongovernmental research scientists, on the recommendation of the Federal Hospital Council. Grants will be awarded for research into: (1) the needs for hospital and related services; (2) measurement of resources to meet these needs; (3) hospital and medical facilities planning, both in relation to community needs and resources, and to architectural and design aspects; (4) methods of increasing the availability and effectiveness of hospital services and of improving the quality of these services; and (5) methods by which hospital services can be improved or costs lowered through coordination on a regional or other basis. Inquiries and applications for grants should be addressed to the Division of Research Grants, National Institutes of Health, Bethesda, Md.

Research on Air Pollution.—The Public Health Service has announced grants totaling $295,367 to start a special program of research into air pollution problems that Surgeon General Scheele hopes will answer many puzzling questions and help eliminate many dangers from air pollution. The 10 grants were awarded by the surgeon general on recommendations of the National Advisory Health Council from a $500,000 fund appropriated by Congress this year.

"There has been increasing evidence that various types of air pollution may constitute a serious, widespread danger to human health," Dr. Scheele said. "To what degree this is so, in just what way the human body may be damaged by different air pollutants in different concentrations, is therefore a matter of deep concern to us. These and other studies over the period of the next few years should provide some of the answers."

VETERANS ADMINISTRATION

Residents in Psychiatry Wanted.—The Veterans Administration Hospital, Hines, Ill., still has openings for resident physicians in psychiatry, beginning at any time but preferably at the start of each quarter for the current fiscal year. The hospital is a large training center that is accredited for training in 18 specialties of medicine. It is within easy commuting distance of various psychiatric facilities in Chicago. The deans' committee is comprised of the four local medical schools. The training program is well rounded and accredited for full training.

Dr. J. E. Davis Retires.—John Eisele Davis, Sc.D., retired from the Veterans Administration Sept. 30 after 35 years of government service and will now devote himself to teaching, lecturing, and writing. Dr. Davis has been a pioneer in development of recreation for the treatment of mental patients. He is the author of several books and manuals on medical rehabilitation and on corrective and recreational therapy as psychotherapeutic-activity approaches. He is said to have written the first book on recreational therapy published in this country in collaboration with Dr. William R. Dunton, associate professor of psychiatry at Johns Hopkins Medical School. He was the founder of the Association for Physical and Mental Rehabilitation which now has chapters in every state. His most recent book, "Clinical Applications of Recreational Therapy," was published in 1952. Dr. Davis' winter home is at Keystone Heights, Fla.

DEATHS

Lyon, James Alexander ⊕ Washington, D. C.; born in Deposit, N. Y., Feb. 28, 1882; Maryland Medical College, Baltimore, 1906; subsequently studied in London, Vienna, and at Harvard; *interned at Franklin Square and Bay View City hospitals* (rotating service) Baltimore, 1906-1907; resident physician Loomis Sanatorium in Liberty, N. Y., 1907-1909; later senior resident physician and assistant superintendent at the Massachusetts State Sanatorium in Rutland; served as a first lieutenant, captain, and major in the Medical Corps of the U. S. Army from 1916 to 1925; first served on the Mexican Border and later with the American Expeditionary Forces in France, participating in the battles of Champagne-Marne, Aisne-Marne (Belleau, Château-Thierry), St. Mihiel, Ile de France, Lorraine, Defense of Toul, and Meuse-Argonne; later, served as post surgeon for the third U. S. Infantry, Fort Wayne, Detroit; his military honors included the Silver Star, Purple Heart, Congressional Selective Service medal, Mexican Border Service medal, the Victory medal with five major battle campaign clasps, and the French Croix de Guerre; first secretary and third president of the Washington Heart Association; member of the Association of Military Surgeons of the United States and the American Heart Association; fellow of the American Association for the Advancement of Science, American College of Chest Physicians, and the New York Academy of Medicine; life member of the American College of Physicians; professor of clinical cardiology at Georgetown University School of Medicine from 1929 to 1940; specialist certified by the American Board of Internal Medicine; consulting cardiologist at the Doctors Hospital, where he was a member of the executive and teaching staff; cardiologist at Sibley Memorial Hospital; for many years on the staffs of the Georgetown University Hospital, Children's Hospital, and the Emergency Hospital, where he died Aug. 3, aged 73, of adenocarcinoma of the sigmoid colon.

Kitchin, Thurman Delna ⊕ Wake Forest, N. C.; born in Scotland Neck, N. C., Oct. 17, 1885; Jefferson Medical College of Philadelphia, 1908; in 1917 became professor of physiology at Wake Forest College, where he was president from 1930 to 1950, after which he became professor of physiology and hygiene at the Wake Forest School of Medicine, serving as dean for many years; past-president of the Medical Society of the State of North Carolina and the Sixth District Medical Society; fellow of the American College of Physicians and the American Association for the Advancement of Science; member of the Southern Medical Association, Tri-State Medical Society, Omicron Delta Kappa, Delta Kappa Epsilon, Phi Chi, and Phi Beta Kappa; in 1925 appointed by Governor McLean a member of a special committee to study the problem of the feebleminded in North Carolina; member of the Veterans Administration special committee on rehabilitation and education problems; *member of the North Carolina advisory council of the unemployment* compensation commission; chairman of the North Carolina advisory council for the employment security commission; representative of the Association of American Colleges Advisory Council on Medical Education; member of board of directors of the North Carolina Sanatorium for the Treatment of Tuberculosis in McCain; received honorary degrees of doctor of law from Duke University, Durham, University of North Carolina, Chapel Hill, and Davidson (N. C.) College; author of "Lectures on Pharmacology," "The Doctor and Citizenship," and "Doctors in Other Fields"; died Aug. 28, aged 69, of a heart attack.

Cheever, David ⊕ Boston; born in Boston June 25, 1876; Harvard Medical School, 1901; associate professor of surgery *emeritus at his alma mater, where he joined the faculty in 1913;* served as a lieutenant colonel in the British Expeditionary Force during World War I; past-president of the American Surgical Association, New England and Boston Surgical societies, and the Boston Medical Library; from 1940 to 1946 a member of the board of overseers of Harvard University and was a vice-president of the Harvard Alumni Association; fellow of the American Academy of Arts and Sciences and the Massachusetts Historical Society; honorary fellow of the Royal Society of Medicine, London, and the Society of Surgery of Argentina; Bevan lecturer, Chicago Surgical Society (1939), and Balfour lecturer, University of Toronto (1941); member of the founders group of the American Board of Surgery; for many years on the staffs of the Boston City and Peter Bent Brigham hospitals; died at his summer home in Wellesley Aug. 13, aged 79, of heart disease.

Gillespie, Noel Alexander, Madison, Wis.; born in London, England, Dec. 25, 1904; *M.B., University of Oxford School of* Medicine, England, 1931, and M.D., in 1935; University of Wisconsin Medical School. Madison, 1945; after serving on the staffs of several British hospitals between 1934 and 1939, joined the faculty of the University of Wisconsin Medical School to occupy in turn the positions of resident, research associate, assistant professor, and associate professor of anesthesia; fellow of the Royal Society of Medicine, the Royal College of Surgeons, *and the International College of Anesthetists; corresponding* member of the Société française d'anesthésie; member of the American Society of Anesthesiologists, the Canadian Anesthetists' Society, and the Association of Anesthetists of Great Britain and Northern Ireland; author of "Endotracheal Anaesthesia"; died in the University Hospitals Aug. 21, aged 50, of myocardial infarction.

Porter, John McGill ⊕ *Concordia, Kan.; born in Kansas City* Aug. 13, 1899; Harvard Medical School, Boston, 1926; interned at the Henry Ford Hospital in Detroit; from 1948 to 1953 member of the House of Delegates of the American Medical Association; president of the Kansas Medical Society, of which he was elected second vice-president in 1952, and in 1953 first vice-president; for eight years previously held the office of secretary of this society; past-president of the Cloud County Medical Society and the Kansas Heart Association; during World War II served in the U. S. Naval Reserve for four years and was discharged with the rank of captain; during World War I was a second lieutenant in the field artillery; in 1947 resigned as health officer of Cloud County to accept an appointment as a member of the state board of health; died Sept. 5, aged 56, of acute pancreatitis.

Pillsburg, Henry Church ⊕ Brigadier general, U. S. Army, retired, Ross, Calif.: born in Lowell, Mass., May 27, 1881; Harvard Medical School, Boston, 1906; fellow of the American College of Physicians and the American College of Surgeons; member of the Asssociation of Military Surgeons of the United States; entered the regular Army in 1907; served during World Wars I and II; became a lieutenant colonel in 1927 and a colonel in *1933; major assignments included direction of medical services* in the Panama Canal Zone, service as director of x-ray facilities at Walter Reed Hospital, Washington, D. C., and command of the Lovell General Hospital in Fort Devens, Mass., and the Thayer General Hospital in Nashville, Tenn.; retired May 31, 1945; died July 18, aged 74, of a heart attack.

Shaw, Arthur Briggs, Altadena, Calif.; born in Joliet, Ill., April 28, 1886; Dartmouth Medical School, Hanover, N. H., 1911; interned at Boston City Hospital, and the Willard Parker Hospital and New York Lying-In Hospital in New York City; formerly practiced in Longview, Wash., where he was president of the Cowlitz County Medical Association for two terms and was one of the founders of the Cowlitz General Hospital, serving on its board for several years; died in the Collis P. and Howard Huntington Memorial Hospital in Pasadena July 18, aged 69, of myocardial infarction.

⊕ Indicates Member of the American Medical Association.

Aurand, William Henry ⊕ Minneapolis; University of Minnesota College of Medicine and Surgery, Minneapolis, 1901; member of the American Academy of General Practice; in 1938 became chief of staff of St. Barnabas Hospital; died in the Franklin Hospital July 17, aged 80, of carcinoma of the bladder with multiple bone metastases.

Bagwell, Robert Wayne ⊕ Borger, Texas; University of Texas School of Medicine, Galveston, 1941; interned at the Baltimore City Hospital; formerly a resident at the Brackenridge Hospital in Austin; served in the U. S. Naval Reserve during World War II; died May 23, aged 38, of coronary thrombosis.

Bennett, Francis Paul ⊕ Alliance, Ohio; University of Cincinnati College of Medicine, 1922; interned at the Wheeling (W. Va.) Hospital; for many years a member and at one time president of the staff of the City Hospital; died in the University Hospitals, Cleveland, June 26, aged 61, of abdominal cancer.

Bibb, James Porter, Montgomery, Ala.; University of Nashville Medical Department, 1907; died July 20, aged 75, of arteriosclerosis.

Blanchard, Florence Estelle Crummett, Windsor, Vt.; College of Physicians and Surgeons; Boston, 1911; died June 29, aged 71, of cerebral thrombosis.

Bowman, Delbert J. ⊕ Lincoln, Neb.; Cotner University Medical Department, Lincoln, 1911; for many years on the staff of St. Elizabeth Hospital; died Aug. 4, aged 73.

Briscoe, Benjamin E., Willcox, Ariz.; University of Tennessee Medical Department, Nashville, Tenn., 1901; served on the school board and state legislature; died in Phoenix July 29, aged 78, of cancer of the mouth.

Browning, Eugene Shelley ⊕ Grand Rapids, Mich.; Detroit College of Medicine, 1905; at one time on the faculty of Grand Rapids Medical College; on the staffs of the Blodgett and St. Mary's hospitals; died in Butterworth Hospital July 7, aged 74, of cerebral hemorrhage and hypertension.

Carson, James Green ⊕ Clarksdale, Miss.; Columbia University College of Physicians and Surgeons, New York City, 1893; died Aug. 18, aged 86.

Cleary, Joseph P. ⊕ Minotola, N. J.; Bennett Medical College, Chicago, 1913; veteran of the Spanish-American War and World War I; on staff of Lankenau Hospital in Philadelphia; died in Atlantic City, N. J., Aug. 7, aged 73, of a heart attack.

Cooper, Irving Joseph ⊕ New Brunswick, N. J.; Georgetown University School of Medicine, Washington, D. C., 1928; on the staff of St. Peter's Hospital, where he served an internship and where he died Aug. 4, aged 52, of cerebral thrombosis, coronary thrombosis, and diabetes mellitus.

Dillard, James Albert, Waurika, Okla.; University of Arkansas School of Medicine, Little Rock, 1910; county health director; died in the Waurika Hospital July 30, aged 70, of a heart attack.

Edahl, Edwin Waldamar ⊕ Van Horn, Texas; University of Illinois College of Medicine, Chicago, 1930; interned at the Wesley Memorial Hospital in Chicago; served during World War II; at one time on the staff of the Veterans Administration Hospital in Amarillo; formerly associated with the New Mexico Health Department; died in El Paso June 8, aged 62, of acute myocardial infarction.

Gillespie, Julian Mason, surgeon, U. S. Public Health Service, retired, Richmond, Va.; University of Maryland School of Medicine, Baltimore, 1909; retired Nov. 25, 1930; died in Baltimore July 27, aged 73, of subdural hemorrhage.

Greer, Neil E. ⊕ Lockney, Texas; Fort Worth School of Medicine, Medical Department of Texas Christian University, 1914; died June 26, aged 72.

Hess, Peter William, Dexter, Maine; Harvard Medical School, Boston, 1901; died in the Plummer Memorial Hospital Aug. 6, aged 80, of myocardial failure.

Holmes, Alfred Wellwood, Detroit; Detroit College of Medicine, 1910; member of the Michigan State Medical Society; died in the Lincoln Hospital June 22, aged 68, of coronary thrombosis.

Holmes, John Franklin ⊕ Manchester, N. H.; Tufts College Medical School, Boston, 1909; formerly chairman of the board of health; fellow of the American College of Surgeons; served on the staffs of the Elliot Hospital in Manchester, the Hillsboro County General Hospital in Grasmere, the Alexander-Eastman Hospital in East Derry, Pembroke Sanatorium in Concord, Exeter (N. H.) Hospital, and Waldo County General Hospital in Belfast, Maine; died June 19, aged 76, of pulmonary embolism and pneumonia.

Honigsberg, Leo ⊕ Miami Beach, Fla.; University and Bellevue Hospital Medical College, New York City, 1928; boxing commission physician from 1942 to 1953; police surgeon for the North Miami police department since 1949; on the staff of St. Francis Hospital, where he died July 6, aged 52, of coronary occlusion with myocardial infarction.

Howell, Robert, Traverse City, Mich.; Detroit College of Medicine, 1892; for many years assistant superintendent of the Eloise (Mich.) Hospital; died in the James Decker Munson Hospital July 29, aged 90.

Kahn, Isidor Nathan, New York City; University and Bellevue Hospital Medical College, New York City, 1907; member of the Medical Society of the State of New York; formerly associated with Gouverneur, Bronx, and Bellevue hospitals; died Aug. 11, aged 75, of carcinoma of the stomach.

Kornbluh, Ignatius ⊕ New York City; University and Bellevue Hospital Medical College, New York City, 1906; an associate member of the American Medical Association; served on the staffs of the Misericordia and Lenox Hill hospitals; died June 22, aged 75, of coronary thrombosis.

Lazarus, Benjamin ⊕ Newton, Mass.; Harvard Medical School, Boston, 1899; died Aug. 15, aged 78, of coronary thrombosis.

Leighton, Isaac Wellman, Iowa City; Northwestern University Medical School, Chicago, 1909; associate professor of anatomy at the State University of Iowa College of Medicine; died in the Mercy Hospital Aug. 4, aged 70, of coronary thrombosis.

Lemberg, Leon, New York City; New York University Medical College, New York City, 1898; died July 27, aged 86, of heart disease.

Lutterloh, Isaac Sr., Sanford, N. C.; Vanderbilt University School of Medicine, Nashville, Tenn., 1890; died June 6, aged 89, of chronic myocarditis.

McCarthy, James Matthew ⊕ Woonsocket, R. I.; Harvard Medical School, Boston, 1917; interned at St. Joseph's Hospital in Providence; served during World War I; past-president of the Woonsocket District Medical Society; on the staff of the Woonsocket Hospital; died in the Phillips House of Massachusetts General Hospital, Boston, July 26, aged 64.

McCarthy, Ralph Rowland, Downey, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1911; died June 9, aged 71, of pulmonary edema and emphysema.

McCorkle, William Pyles ⊕ Bridgeville, Pa.; Jefferson Medical College of Philadelphia, 1897; an associate member of the American Medical Association; died in the Allegheny General Hospital, Pittsburgh, June 11, aged 85, of coronary occlusion.

Michie, Winston Thomas, Memphis, Tenn.; University of Virginia Department of Medicine, Charlottesville, 1898; died in the Baptist Hospital July 28, aged 82, of pulmonary abscess and cystic nephritis.

Miley, Weir Mitchell ⊕ Anderson, Ind.; Jefferson Medical College of Philadelphia, 1910; past-president of the Madison County Medical Society; served overseas during World War I; in August, 1927, became a member of the school board, of which he had been treasurer, secretary, and president; died July 26, aged 69, of asthma and heart block.

Mitchell, Frank Baxter, Crescent, Ga.; Medical School of Maine, Portland, 1901; New York Homeopathic Medical College and Hospital, New York City, 1905; at one time associated with the Milledgeville (Ga.) State Hospital; died in Savannah, July 3, aged 78.

Moon, Arthur Ernest ⊕ Temple, Texas; University of Texas School of Medicine, Galveston, 1920; fellow of the American College of Physicians; for many years associated with Scott and White Memorial Hospital; died July 27, aged 65, of a heart attack.

Morris, William Francis ⊕ Princeton, Ind.; Jefferson Medical College of Philadelphia, 1900; county coroner for two terms; formerly health officer of Fort Branch; died April 22, aged 79, of coronary thrombosis, hypertension, and arteriosclerosis.

Mudge, Murray Fairbanks, Newfane, N. Y.; Niagara University Medical Department, Buffalo, 1895; veteran of the Spanish-American War and World War I; died July 23, aged 85.

O'Connor, Roderic Patrick ⊕ Oakland, Calif.; University of Pennsylvania Department of Medicine, Philadelphia, 1900; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology and the Pacific Coast Oto-Ophthalmological Society; for many years an officer in the regular Army; on the staff of the Providence Hospital; a consultant for Children's Hospital of the East Bay; died in Carmel July 6, aged 77, of myocardial infarction.

Pieper, Henry G. ⊕ St. Louis; St. Louis University School of Medicine, 1903; also a registered pharmacist; died July 25, aged 76, of injuries received in an automobile accident.

Purtle, Christopher Columbus, Little Rock, Ark.; University of Arkansas School of Medicine, Little Rock, 1907; served as superintendent of the Pulaski County Hospital; died in St. Vincent's Infirmary June 26, aged 76, of coronary occlusion and peptic ulcer with hemorrhage.

Reed, James Ross, Altadena, Calif.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1905; specialist certified by the American Board of Ophthalmology and the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the International College of Surgeons and the American College of Surgeons; served during World War I; on the staffs of the St. Luke Hospital and the Collis P. and Howard Huntington Memorial Hospital; died May 11, aged 75, of cerebral embolus.

Robertson, Arthur Edward, Dana, Ind.; The Hahnemann Medical College and Hospital, Chicago, 1910; died in Pontiac, Mich., July 7, aged 80.

Rosander, Phyllis, Minneapolis; University of Minnesota Medical School, Minneapolis, 1950; interned at Minneapolis General Hospital; formerly a fellow in obstetrics and gynecology at the University of Minnesota; served a residency at Sanford Hospital in San Francisco; killed in an automobile accident near Knolls, Utah, May 29, aged 34.

Rubenstein, Louis G. ⊕ Pittsburgh; University of Pittsburgh School of Medicine, 1899; an associate member of the American Medical Association; a founder and for many years on the staff of the Braddock General Hospital; died Aug. 21, aged 84.

Schultz, J. William ⊕ Tremont, Pa.; Medico-Chirurgical College of Philadelphia, 1895; an associate member of the American Medical Association; for many years deputy coroner; on the staff of the Pottsville (Pa.) Hospital; died July 27, aged 82, of acute myocardial infarction.

Small, Frederick Rieth ⊕ Newburgh, N. Y.; University and Bellevue Hospital Medical College, New York City, 1931; interned at the Knickerbocker Hospital in New York City; fellow of the American College of Surgeons; member of the New York Academy of Medicine; served during World War II; chief of surgery of St. Luke's Hospital; consulting surgeon, Highland Hospital in Beacon; died in Skytop, Pa., July 20, aged 57, of coronary occlusion.

Stark, Charles Vernon, Harlan, Ky.; Tennessee Medical College, Knoxville, 1900; died June 1, aged 76.

Stevenson, Eber Fortner ⊕ Waterloo, Iowa; Jefferson Medical College of Philadelphia, 1904; died July 11, aged 81, of coronary heart disease.

Stork, A. Robert ⊕ Logan, W. Va.; Medical College of Virginia, Richmond, 1935; died Sept. 11, aged 44, of pneumonia.

Stoutamire, Fred A., Richmond, Va.; University College of Medicine, Richmond, 1911; anesthetist at the Retreat for the Sick; died July 23, aged 67, of acute coronary thrombosis.

Streeter, Frederick B., Glens Falls, N. Y.; Albany (N. Y.) Medical College, 1879; served as health officer of the village of Glens Falls and the town of Queensbury and as coroner of Warren County; formerly member of the board of education; on the honorary staff of the Glens Falls Hospital; died Aug. 25, aged 101, of arteriosclerosis.

Swift, Robert Howard ⊕ Orinda, Calif.; Washington University School of Medicine, St. Louis, 1943; interned at St. Mark's Hospital in Salt Lake City; formerly a resident at the Ellis Fischel State Cancer Hospital in Columbia, Mo., and the Permanente Foundation Hospital in Oakland; died July 28, aged 38.

Switzer, John Franklin, New Straitsville, Ohio; Eclectic Medical Institute, Cincinnati, 1893; died in Mount St. Mary's Hospital in Nelsonville July 10, aged 89, of cancer.

Thompson, William Albert, Stigler, Okla.; College of Physicians and Surgeons, Little Rock, 1909; formerly associated with the Indian Service; died Aug. 11, aged 81.

Thompson, William Graham ⊕ Andover, Mass.; Harvard Medical School, Boston, 1933; on the staffs of Bon Secours Hospital in Methuen, and Lawrence (Mass.) General Hospital; died Aug. 13, aged 49, of idiopathic pulmonary edema.

Trooien, Peter O., Eagle Grove, Iowa; Minneapolis College of Physicians and Surgeons, 1906; died Aug. 2, aged 81, of Hodgkin's disease.

Troutman, Holmes Fielding ⊕ Huntington, W. Va.; University of Pennsylvania Department of Medicine, Philadelphia, 1908; formerly chief surgeon at the Queens Hospital in Honolulu; died in the Memorial Hospital Aug. 16, aged 74, after a cerebral hemorrhage.

Voislawsky, Van Rensselaer, New York City; Columbia University College of Physicians and Surgeons, New York City, 1929; interned at the St. Luke's Hospital, where he was later on the staff; formerly a resident physician at the Bellevue Hospital; certified by the National Board of Medical Examiners; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; died Aug. 29, aged 51, of pneumonia.

Walker, Arthur Wellington ⊕ Riverside, Calif.; John A. Creighton Medical College, Omaha, 1904; an associate member of the American Medical Association; fellow of the American College of Surgeons; died in Santa Ana July 5, aged 81, of coronary thrombosis.

Wall, John Alexander, San Antonio, Texas; University of the South Medical Department (Sewanee Medical College), Sewanee, Tenn., 1899; died in Houston May 11, aged 81, of cerebral vascular accident.

Wenzinger, Harold John ⊕ Defiance, Ohio; University of Louisville (Ky.) School of Medicine, 1937; secretary of the Defiance County Medical Society; member of the American Academy of General Practice; served during World War II; physician for Defiance College; on the staff of the Defiance Municipal Hospital; died in an automobile accident near Greensburg, Ind., Aug. 25, aged 45.

Whitaker, William Jerry, Dallas, Texas; University Medical College of Kansas City, Mo., 1900; served during World War I; at one time practiced in Pryor, Okla., where he founded a hospital bearing his name, and was physician to the Whitaker Orphans' Home; died in the Methodist Hospital Aug. 2, aged 74, of coronary occlusion with myocardial infarction.

Wilkinson, Stella Lucy ⊕ St. Paul; University of Minnesota College of Medicine and Surgery, Minneapolis, 1903; served on the staffs of the Moose Lake (Minn.) State Hospital and the Minnesota School and Colony in Faribault, Minn.; died in Midway Hospital July 22, aged 81, of coronary sclerosis and cholelithiasis.

FOREIGN LETTERS

AUSTRIA

Physicians' Strike.—On June 18, 1955, nearly 50% of the active physicians from all parts of Austria went to Vienna to participate in a protest against the proposed general social security bill (ASVG). On Aug. 25 and 26, all the Austrian physicians (practitioners, specialists, hospital physicians, professors, and assistants) went on strike. A well-organized emergency service was established so that no patient remained without emergency care. The ASVG deeply affects the free professional activities of the physicians and greatly limits the rights of the insured persons. The law would mean the end of any noteworthy private practice and would also mean the creation of a monopoly in the field of health by the main body of carriers of social insurance.

Development of Health Insurance in Austria.—Out of the Christian "Caritas" of the Middle Ages, community organizations have evolved to help the medically indigent. Guild funds were created to provide for a balance of risks. The Miners' Funds is an outgrowth of one of these. From such sources large-scale health insurance developed in the 1880's. In 1888 a health insurance law made this insurance obligatory for workmen in industry, traffic, and trade. In the beginning, these insurance funds were simple and economic; the number of employees was small and the contacts between insured persons, physicians, and employees were personal and close. The claims of the insured persons were reasonable, and the physicians worked for a small fixed salary and were able to compensate their low fees with their income from private practice. The industrial revolution brought about a rapid extension of health insurance. Although the loss of World War I, the dismemberment of the Austrian Empire, and the resulting breakdown of the currency caused a severe shock to the insurance funds, they were kept alive. The employee insurance law of 1926, for the first time, combined health insurance with the other branches of social insurance for employees in private business; a similar law for the laborers was enacted, but, because of the bad economic conditions at this time, no attempt was made to enforce it. In the meantime 31 amendments were added to the original law. A law for the agricultural workers gave sickness, accident, invalidism, and old age insurance to this group, and all federal employees were similarly insured. A new system of contract physicians was initiated by some of the funds. This system gave the insured persons the right of free choice of their physician. The number of insured persons snowballed; free practice shrank from day to day; and the physicians became more and more dependent on the insurance funds.

Value of Social Security.—In the 40 years of its existence (1895 to 1935) social security had proved its value and its superiority over private charity and private services for the poor. The feeling of security even when the insured person claimed no benefits, the certainty of being protected from the first day of an illness, and the feeling of ease about the welfare of one's family impressed the employee that he was getting something in return for his high premiums. The employers too appreciated the partial release from liability worries, the assurance of the worker's return after his recovery, and the increased work capacity of the worker due to better medical care. From the viewpoint of political economy, it was important that thousands of people in times of disease did not fall out as customers; the sales remained constant and millions of schillings were flowing back into the economic life of the country through insurance fund payments. For the physician there was the advantage that his insurance salary, even though reduced, was assured. Furthermore the emphasis on disease and accident prevention was beneficial. The government considered the social security of large masses of the population as the most effective dike against restlessness, revolution, and chaos.

In a situation in which unemployment deprived the insurance funds of their support, the threat of civil war paralyzed industry and the economic position of the physicians reached a low point. An industrial social insurance law was therefore enacted in 1935. It contained all those characteristics that in the course of World War II came to be called "social security" in the allied countries. Social security in the form of unemployment benefits weakens the private insurance principle. Health insurance is truly insurance, but unemployment insurance is a public social service. In the period between the two world wars, inflation had destroyed the security reserves as well as the economically valuable connections of the empire. The private insurance companies coldly insisted on the principle of "a crown is a crown," since their capital had been proportionately devaluated. The social security agency, however, had to revaluate all the pensions and had at least to adjust the sickness benefits. Under the economic circumstances that prevailed at this time, increased premiums (obligatory contributions) or federal subsidies were out of the question and unemployment was a great burden to the budget. There was, therefore, only one way, i. e., to reduce the benefits. No extension of insurance to new groups was possible. The law of 1935 now appears as an outstanding achievement professionally and socially, which restored the balance between revenues and expenses in social security, relieved the most acute suffering, and separated true social insurance from the tasks belonging to the social service. In many details the administration was simplified; premiums were based on a certain percentage of wages. Most important, the law placed the physicians and their organizations as partners, with rights equal to those of the insurance funds in the National Committee, the Committee for Physician's Help, and other special committees. In these committees, the number of representatives from the national association of the social insurance carriers and from the members of the legal representative body for the interests of the physicians was the same. These committees settled all the important basic problems by arbitration.

Changes After Occupation of Austria.—The occupation of Austria by Nazi Germany in 1938 gave the German National Social Insurance Law legal force in Austria. The autonomy of the social security agency was abolished, and the Association of Fund Physicians became the highest authority. In spite of the difficulties that were brought about by World War II, the health insurance program continued to function and the physicians were satisfied, although they objected to some of the authoritarian interventions by the government. After 1945 an Austrian type of health insurance was reestablished and the autonomy of the insurance funds was restored, but at this time the physicians had no legal representatives. They expected that the tradition of the previously existing industrial social security law, which had proved its value, would be continued, but that was not the case. The new social security law gave the health insurance funds a clear preponderance over their former partners. The funds were designated as carriers and the physicians as performing aids. The physicians made contracts with the insurance funds, but they also had to carry all the burdens of a free profession. They had to equip their offices and pay rent on them, but they did not participate in the 48 hour week, overtime pay, paid vacation, or old age pension plans. They were, however, bound by regulations of the insurance funds the same way the workers were. Their fees, which had remained far below the costs of living, were fixed by the insurance funds. Only the amount that remained after all the cost of sickness benefits, hospital expenses, administration, and drugs had been met was allocated for the physicians' fees. In 1949, when the physician's

---

The items in these letters are contributed by regular correspondents in the various foreign countries.

law gave the physicians legal representation, the economic position of the profession improved but some of the regulations of the social security law became a permanent drag and had to be fought constantly. In 1955 a revision, the ASVG, was drafted. It was this law that became the center of the conflict.

Provisions of the New Social Security Bill.—All employees, white-collar workers and laborers alike, are required to participate in the insurance. The compulsory funds are divided into the regional health insurance funds, an agricultural health insurance fund, a health insurance fund of the federal employees, a health insurance fund of the federal railroads, a small number of health insurance funds for certain larger industries or for the employees of the city of Vienna, health insurance funds for self-employed persons, the so-called master health insurance funds of general trades, and some small health insurance funds such as those of lawyers and public notaries. The statutes of these compulsory funds give in addition a free margin for a voluntary insurance, particularly in the form of a voluntary continuation after employment has been discontinued, but they also comprise automatically all the members of the family of the insured persons.

Voluntary health insurance funds exist in Austria but are of little importance compared with the comprehensive compulsory funds. These voluntary funds are appreciated by the insured persons and by the physicians. Their most important functions are to provide benefits in addition to medical treatment (including specialists), complete hospitalization for 26 to 52 weeks, transportation to the hospital, drugs prescribed by a physician, obstetric service, pregnancy benefits, and nursing and dental care (the patient pays part of the cost of prostheses) provided by the compulsory health insurance funds. Since compulsory insurance embraces nearly the entire population, there is little room for any private practice. The management of the compulsory insurance funds is in the hands of two committees, but the physicians have neither a seat nor a vote in these administrative bodies. This exclusion of the physician from the management of the insurance funds was associated with an appalling reduction of fees. A small number of physicians in administrative or industrial positions are paid a fixed salary, but the overwhelming majority work as contract physicians and are paid according to individual contracts, which are drawn up according to regulations of fees that differ regionally and according to the various health insurance funds. From the original concept of granting treatment at reduced rates to those who are needy, now the reduced rates apply to everyone. The system's disadvantage is that the physician is exploited, the insured person fears he will not be well taken care of, and administrators of insurance funds assume that the physicians are collecting insurance certificates (as a basis for their fees) and are admitting too many patients to hospitals, although neither of these assumptions has been confirmed.

Amount of Fees.—The amount of the fee varies greatly. In 1955, the master sickness insurance funds and the insurance associations of the federal employees and federal railroads paid about 25 cents for a consultation and twice that for home calls. The funds with lump sum contracts pay fixed amounts per year or a percentage of the fund's revenues. Funds granting a lump sum for the individual case pay only $0.77 to $1.15 per case for services including consultations, home calls, and injections for each three months. On behalf of the Main Combine, the director stated in a radio broadcast that each contract physician earns $230 on the average per month. He based this statement on the yearly amount of physicians' fees, totaling $16,795,480, but this figure includes all the fixed salaries of administrative and industrial physicians, which amount to about 20% of the total figure. The Chamber of Physicians estimated that the average monthly income of the contract physicians was $173. This includes payments for such items as major operations, refunds for travel expenses, supplies, office rent, and x-ray examinations. In other words it represents receipts, not income. According to the yearly report of the Lower Austrian Regional Health Insurance Funds, 17 physicians had a gross income of less than $38.50 a month; 216 received $63.50; 171 received less than $115; and only 164 received more than $192. Furthermore, no health insurance funds pay a penny to the physician if he becomes disabled by an infectious disease acquired in the line of duty.

About 2,250,000 insurance certificates were submitted by the 680 contract physicians of Lower Austria in 1952, or about 275 per month per physician. Each of these certificates represented about six office calls, counting one home call as two office calls. Thus 1,650 office calls fall to one physician's share in one month. If the contract physician received (as the director asserted) $230 a month, he would be paid about 14 cents gross income for one office call, including all expenses, night service, overtime and Sunday work, and return on his expensive education, but in reality he receives only about 10.5 cents. In spite of all this, the patients are receiving good care. The physicians' services are highly appreciated by everybody. This should make it clear that the situation of the Austrian physicians, as it was bound by the Social Security Transition Law, was highly unsatisfactory. The physicians believed in social security as such, but they believed that a new code was necessary and looked forward to its enactment.

Objections to Proposed Social Security Law.—Since 1953, when the outline of the social security law that was worked out by the Main Combine and by the Ministry of Social Service became known, the Chamber of Physicians objected to some of the regulations and presented an alternate plan rewording the part of the law that dealt with the regulations concerning the relationship of the physicians with the insurance carriers. After long, difficult negotiations with the Main Combine, the political parties, and finally the Social Committee of the National Council (parliament), in the summer of 1955 an agreement seemed likely. The main points against which the physicians fought were further extension of the compulsory insurance, without collecting higher fees from the insured persons in the upper income brackets or without granting higher fees to the physicians, and further unlimited construction of ambulatoriums, without granting the physicians the right to determine the needs for such ambulatoriums and without maintaining the competition between contract physician and ambulatorium under equal conditions. The main points for which they fought were the right of work for every physician in the frame of the social security, since nearly the entire population already is included; protection against arbitrary notice given to the contract physician without stating reasons; an objective, independent group of appeal judges with the right to make decisions; and the establishment of more equitable fees.

The proposal of the Chamber of Physicians was based on the following principles of the World Medical Association: free selection of physician by the patient, no intervention by a third party between physician and patient, control of medical service only by the physician, free selection of hospital, freedom of movement for the physician, freedom of administration of drugs and treatment, representation of the medical profession in public agencies for medical care, free professional activities of physicians, payment independent of the financial situation of the insurance funds, admission of all physicians to social security benefits, no compulsory insurance of persons who are able to pay for their medical care, and no exploitation of physicians.

With infinite patience an attempt was made to have these basic claims presented in the social security law, but, because a satisfactory result could not be obtained by the negotiations with the Main Combine, the large-scale protest of June 18 was staged. Its success was overwhelming. There was general agreement among the Austrian physicians, independent of party membership, medical specialty, or age. A resolution was presented to the Federal Chancellor, and as a result conferences were held and differences seemed to be resolved. In August, the cabinet formally introduced the social security bill in the National Council. It did not contain any of the improvements that had been agreed on with the physicians. A warning strike was staged throughout Austria on Aug. 25 and 26. This was carried out without any disadvantage to the patients. The population sided with the physicians as did the press, because this was not a common strike about wages only but in the final analysis about the question of monopoly and collectivism on one side and the individual and his freedom on the other.

CUBA

Brain Tumor in Children.—The anatomic and topographic characteristics of 80 children under the age of 15 years affected with brain tumor have been analyzed by Dr. Jorge A. Picaza and his co-workers (*Revista cubana de pediatría,* vol. 27, no. 6, 1955). The patients were divided into three groups: group one consisted of 29 patients who had a malignant tumor proved histologically and whose prognosis was hopeless; group two consisted of 29 patients who had a histologically benign lesion but one which by virtue of its location (basal-nuclei, pons, optic chiasm, or third or fourth ventricle) could not be removed surgically without great risk; and group three consisted of 22 patients with a histologically benign lesion located in a more accessible site. In a follow-up of one to four years only four patients in group one were still alive. Of those in group two, 3 were alive and well; 4 reported an improvement of symptoms after radiotherapy (this is usually ineffective); 4 could not be traced; and 18 were dead. Mortality in patients of the type classified as group three is conditioned by such factors as the size and depth of the lesion, the patient's general condition, and the surgeon's skill. Fifteen patients in group three were cured by removal of their tumor; two were improved for a short time only; and the remaining five were dead. Only about 25% of the children with a primary neoplasm of the brain can be cured by the forms of treatment now available. Surgical removal is the only treatment capable of resulting in a permanent cure. Radiotherapy gives temporary relief in some patients. In evaluating the therapeutic results in children with brain tumors, the public, and even the average physician, tends to overemphasize the operative mortality and to overlook the fact that the long-term results are better than those usually observed in the treatment of other neoplasms in children.

Artificial Hibernation for Cerebral Vascular Accidents.—Dr. Centurión and his co-workers (*Archivos del hospital universitario,* vol. 6, no. 6) have treated five patients with cerebral vascular accidents with artificial hibernation. This treatment lessens the metabolic requirements of the body, prevents hyperthermia, permits normal respiratory rhythm and control of bronchial secretions, stabilizes arterial pressure, and allows adequate cerebral circulation. Four of the patients so treated (three with cerebral hemorrhage and one with cerebral thrombosis) were cured, and one with hemorrhage died.

ENGLAND

Food Poisoning.—About two-thirds of the outbreaks of food poisoning in Great Britain are due to eating such meat preparations as sausages, meat pies, and ground meat. Salmonella organisms are responsible for many outbreaks, but there is always some doubt as to whether the organisms are already in the food or are transmitted to it by food handlers. A recent outbreak of food poisoning in Lancashire (Reports on Public Health and Medical Subjects, no. 96, London, Her Majesty's Stationery Office, 1955) involved 1,149 persons of all ages, 5 of whom died. The infected food proved to be meat pies from a bakery, the causative organism being Salmonella morbificans, which is relatively uncommon in Britain. This organism was found in the feces of most of the sufferers and in a large proportion of the pies. Most patients were bacteriologically clear by the 4th week, but five were still carrying the organism after the 15th week, even though they had all been treated with antibiotics and sulfonamides. Examination of the bakery staff, the common constituents of the pies, such as gelatin, flour, and fat, and the cooking utensils yielded no trace of the infecting organism. It was, therefore, assumed to come from the meat, some of which had been kept for eight days before delivery to the bakery. A herd from which some of the meat was derived was found to be infected with S. morbificans. Whatever the source of the organisms, these would have been killed if the pies had been properly processed. Tests showed that a temperature of 380 F for 40 minutes is lethal to Salmonella in a 4 oz. pie. This temperature was not reached in the oven in which the pies were cooked. The baker's choice must have been between damage to his pies or to his customers. Experiments were made to see if pies could be contaminated after baking. Organisms could be recovered from the pies if the operator's fingers were contaminated. A bowl of gelatin used in making the pies was found to be a yard away from a dirty wash basin, and an operator preparing the gelatin was found to be a symptomless carrier of Salmonella typhimurium. Meat pies are a popular and cheap article of food in Great Britain, and, as the incidence of Salmonella poisoning is rising every year, great care should be taken in food processing to use temperatures that sterilize cooked foods and to insist on scrupulous cleanliness on the part of the food handlers before and after cooking.

Safer Anesthetic Apparatus.—A new safety device to prevent mistakes in administering the wrong anesthetic gas has been announced by the British Standards Institution. At present each gas cylinder is clearly labeled by name and is distinctively colored to identify it. Large cylinders, such as are used for pipeline installations, have valves of a type that make it impossible to connect them incorrectly. The British Standards Institution has announced the adoption of a noninterchangeable valve for gas cylinders, with a capacity of 24 cu. ft. or less. Several medical men, including representatives of the Association of Anesthetists of Great Britain and the Medical Defence Union, have been serving on the British Standards committee dealing with the problem. The principle of the noninterchangeable valve is similar to that of radio valves, whereby spacing of the pins insures that each type can be inserted only in the corresponding socket. Differently spaced pairs of holes in the valves correspond with pins in the connecting part of the administration apparatus, so that only the right cylinder can be connected to the right yoke. It will thus be quite impossible to connect a cylinder of carbon dioxide or nitrous oxide to an apparatus administering oxygen. Deaths from this kind of error have occurred in the past. An identical valve system is already in use in the United States, Canada, Australia, and Switzerland, and it is hoped that all NATO countries will adopt it so that the medical services of their armed forces can be coordinated. The system has also been recommended in Stockholm by the technical committee of the International Organization for Standardization. The new equipment will be available in Great Britain in the fall, but the conversion of existing apparatus will not start until the fall of 1956 as new tools are needed. The first machines to be converted will be those in hospitals. Manufacturers will bear the cost of converting gas cylinders, but the cost of converting apparatus will be the responsibility of the owner.

International Congress on Diabetes.—The second Congress of the International Diabetes Federation met in Cambridge in July. The Banting Lecture of the British Diabetic Association was given by Dr. Joslin of Boston, who all his life has advocated strict control of diabetes to prevent or delay complications. His views are supported by data on the longevity of diabetic patients and their causes of death. Prof. F. G. Young of Cambridge reported that he was able to produce all the signs and symptoms of metahypophysial diabetes, except the changes in nitrogen balance, by injecting the growth hormone into dogs. The diabetes may persist after stopping the injections. Professor Tunbridge, who has treated 400 diabetic patients with the new insulins, listed the following disadvantages: they frequently block the needle; antiseptics reduce their activity; they are not useful in treating hypoglycemic states; there is difficulty in changing to them from other insulins; and they may produce cumulative action. The general opinion was that the insulin-zinc suspensions were unsuitable for unstable diabetic patients and that the difficulties mentioned made them unsuitable for most other patients with diabetes. In the discussion Dr. Joslin said that if a patient were doing well on any type of insulin he should not be changed to another.

Dr. M. Stahmann described work done in the United States to show that synthetic polypeptides, such as polylysine, could prolong the action of insulin without appreciably delaying its initial action. Somewhat revolutionary views on the nature of glucagon were put forward by Prof. G. E. Anderson of Brooklyn, who proposed that this was the trigger for the release of insulin in the postabsorptive state. Although it had itself a hyperglycemic effect, it potentiated the hypoglycemic action of insulin. Dr. Butterfield of Guy's Hospital, London, stated that dimercaprol improves the glucose metabolism in patients requiring large doses of insulin and in patients with burns but that it was to be regarded at present as a research tool and not as a therapeutic agent. It probably acts on the sulfhydryl groups in insulin. Dr. Oakley of King's College Hospital, London, stressed that not only arterial lesions but also neuropathy was responsible for diabetic lesions of the foot. He recommended conservative treatment, but if amputation must be performed it should be below the knee. Papers were read on hypophysectomy for severe diabetes by Dr. L. W. Kinsell of Oakland, Calif., and Dr. R. Luft of Stockholm, Sweden. This rather drastic treatment was limited to young diabetic patients with retinopathy and progressive vascular and renal disease. The hypophysectomized patient became more sensitive to insulin, and reversion of some of the diabetic complications occurred. If the patient could not maintain a normal blood urea nitrogen on an intake of 50 gm. of protein daily, the operation was contraindicated. Dr. J. C. Garbino of Uruguay reported the symptomatic improvement of diabetic retinopathy by the local application to the eye of a solution containing the pituitary melanotropic hormone.

Applied Bacteriology.—The Society for Applied Bacteriology held its first international symposium at Cambridge in July. Dr. K. W. Newell and his co-workers of the Central Public Health Laboratory, Colindale, London, described six outbreaks of Salmonella schottmülleri infection occurring in London, Windsor, and Basingstoke last year. Infection was traced to frozen eggs from China used as a cream filler in a London bakery. They were heavily infected with different Salmonella types. Dr. Newell favored pasteurization of all egg products. Dr. R. M. Fry and Dr. J. Boissard of the Public Health Laboratory, Cambridge, described an explosive outbreak of sore throat affecting 29 soldiers 36 hours after eating a meal. Infection was traced to custard prepared by a cook with a bad cough. It was shown that the streptococci isolated from the cook and responsible for the infection could survive on the skin of the custard. Eight outbreaks of micrococcic (staphylococcic) food poisoning affecting school children were investigated by Dr. Hobbs of Colindale. The vehicle of infection was mock cream prepared from spray-dried milk, which had become infected from human sources after heat treatment. Dr. W. Wilson of the Public Health Laboratory, Melbourne, reported an outbreak of typhoid due to phage type E1. The cases were widely scattered and not connected with known carriers in Australia. One of the victims of the outbreak was taken ill with food poisoning due to Salmonella senftenberg and subsequently was found to have typhoid. Careful investigation showed desiccated coconut imported from Papua to be the source of the infection. The authorities in Papua have now put a stop to production.

The largest outbreak of food poisoning due to Salmonella typhimurium yet recorded was described by Prof. H. Lundbäck of the Stockholm State Bacteriological Laboratory. Affecting 8,845 people, of whom 90 died, this outbreak was due to a strike of slaughterhouse attendants. The living quarters of the animals in the abattoir became overcrowded, and the infection was only controlled by closing the abattoir, cleaning it, destroying all carcasses, and segregating infected persons. One remedy would appear to be smaller slaughterhouses. Dr. M. Ingram and Miss E. Barnes of the Low Temperature Station, Cambridge, suggested the possible use of the broad-spectrum antibiotics for the preparation of meat. They could be used in animal feeds, injected before slaughtering, or incorporated in the processed meat. In the United States, however, such treatment is not acceptable, as antibiotics cannot be used in foodstuffs. An unusual case of food poisoning due to Bacillus cereus affecting 600 people was described by Prof. S. Hauge of Oslo. The main symptoms were abdominal pain, watery diarrhea, and nausea. The organism, isolated from flour, produced similar symptoms in volunteers.

Medical Research Council Annual Report.—In the report of the Medical Research Council for 1953-1954 (London, Her Majesty's Stationery Office, Cmd. 9506, 1955), Prof. J. S. Mitchell of Cambridge reports that a water-soluble vitamin K analogue is taken up preferentially by tumor cells and makes them more sensitive to radiotherapy. The mean survival time in 46 patients with inoperable lung cancer was only four months after radiotherapy. After injection of the vitamin K analogue at the time of radiotherapy the survival time in a comparable series was three times as long. Radioactivity damages living tissue largely because it breaks up water molecules. The best protection against this, so far, is cysteine, which will double radiation tolerance. Another protection against radiation is the injecting of normal splenic cells or bone marrow cells just after exposure. This increases survival after lethal doses of radiation.

Expletives in Dentist's Chair.—A female dentist who declined to treat a patient further because of his persistent use of objectionable language while having a tooth drilled by an assistant was ruled by the Middlesex Health Executive Council to have failed technically to comply with the terms of service. The council recommended that she should not receive the patient's contribution of $2.80. The patient said that when the drill touched a nerve he jumped up, waiting for the pain to subside. The dentist entered and asked him to leave immediately and cancel further appointments. After discussion the filling was completed. The patient denied using obscene language but said that he might have used a few mild expletives. Finding the dentist technically in breach by not requesting permission to withdraw from the case, the council commented: "The expressions used by the patient might have been his usual mode of speech. This case centers on differences of opinion between two contrasting temperaments."

Doctor Not to Pay Fine.—The workings of the National Health Service are illustrated by the following item. The Ministry of Health has informed the London Executive Council that the minister cannot direct the withholding of $85 from a physician as recommended by the council. The physician failed to comply with the terms of service about inspection of his premises and refused to accept notices about a meeting of the medical service committee inquiring into the case. The ministry wrote to the council saying: "It does not appear to the Minister clear that there has been a breach of the terms of service in that the respondent did not actually refuse admission to inspect his premises." The minister thought that there should be a further attempt to make an inspection. A failure by the physician to make arrangements for admission might constitute a refusal to permit inspection.

Physicians' Lists Inflated.—Lieutenant Colonel Lipton (socialist) asserted that the number of patients on National Health Service physicians' lists in the London area exceeded the population of London. He asked for a check of the records and less waste in paying capitation fees to physicians. The Minister of Health said that the number of patients on physicians' lists in London are not in excess of, but closely approximated, the total population and that there was a good deal of inflation in these lists. This does not affect the cost to the Exchequer, but he will review the lists anyway.

Incidence of Poliomyelitis.—Cases of acute poliomyelitis in England and Wales numbered 177 in the week ended July 23, according to the Registrar General, compared with 120 in the previous week and 99 in the week ended July 9. In the week ended July 22, 1954, there were 91 cases. On July 22 this year, 55 patients with poliomyelitis were admitted to Neasden Isolation Hospital on one day. Only one had the paralytic form. A spokesman of the Central Middlesex Hospital Group said: "We are not unduly alarmed. Measles is tapering off and poliomyelitis coming in; it is a seasonal increase."

Death from Barbiturate.—A pathologist said at a Birmingham inquest that a woman's death was caused by a sedative she was given at a mental hospital and that the treatment, although a recognized one, was dangerous. The psychiatric resident at the hospital said that the patient was kept in continuous narcosis. The treatment, involving in her case a dose of 0.5 gm. of a barbiturate, was admittedly dangerous but is one of the oldest treatments used in psychiatry.

Medical Records Exhibition.—The first Medical Records Exhibition was held in London in May by the Association of Medical Records Officers. It illustrated current methods of keeping and storing records and of marshaling patients. At Woolwich Memorial Hospital the whole of a patient's clinical record is photographed. At University College Hospital, microfilming has been resorted to, radiographs included. Existing storage space can also be made to hold more folders by using mobile stacks of shelving to reduce the circulating area required in the record store or lateral filing to increase the number of levels of shelving between floor and ceiling. At the Edgware General Hospital the outpatient cards are kept apart from the inpatient records and destroyed after 7 years; the inpatient notes are bound after one year and destroyed after 20 to 25 years, with the exception of summary sheets, a system that demands a high standard of summary writing. Surveys indicate that no patients return for the same condition after 15 years. Sound-recording facilities exhibited from the Hospital for Sick Children showed that dictation can now be recorded on disk machines in the typing room. Devices such as visible card trays have been found to ease the task of selection and control of waiting lists. A public health records exhibit featured a continuous health record kept from the antenatal period until school-leaving age. The Farnborough Hospital exhibit included a nightly ward return which served not only as a basis for bed statistics but contained a forecast of patient movements in the next 24 hours, this being used as a guide in dealing with applications for emergency admission. The value of graphs in the improved use of hospital accommodation was stressed on the King's College Hospital stand.

Epidemiologist.—In the *British Medical Journal* of July 30 J. R. W. Hay says that the epidemiologist has contributed much to the reduction of illness and its cost to the community. Cholera, typhus, typhoid, and diphtheria have been practically eradicated in this country. Curative measures account for about 95% of the Treasury's contribution to the National Health Service, the rising cost of which is a matter for increasing concern. A savings could be made if scarlet fever were no longer treated in an isolation hospital, except for occasional cases. Furthermore, the present undue emphasis on hospital midwifery seems to be a costly and possibly unhealthy trend. Although many obstetricians advocate hospital for most if not all confinements, all that the epidemiologist can say is that the risk of infection to both mother and child is much higher in the average hospital than in the average home. The empirical use of antibiotics before the organism causing the patient's illness is identified is another harmful and expensive practice, and mass miniature radiography can now be safely dispensed with, provided other diagnostic facilities, including small film apparatus, are adequate. The author would concentrate on vaccinating the school child with BCG to eradicate tuberculosis.

Doctor at Sea.—The young man who passed his exams so entertainingly in "Doctor in the House" now becomes a ship surgeon in the film version of Richard Gordon's "Doctor at Sea." Fleeing the ardent embraces of his principal's daughter, the tyro general practitioner gets a post on a small ship sailing to South America. An eccentric crew, the diffident doctor, and medical comforts provide clean fun aboard ship, while the South American port gives plenty of scope for showing that the improper study of mankind is woman. Here we meet the delightful Brigitte Bardot, a new French star, and Dirk Bogarde as the young physician is what every layman thinks a young physician should be. James Robertson Justice roars with convincing aplomb as the irascible captain of the ship. Romance, humor, and the discovery that some aspects of the practice of medicine are not in the textbooks combine here to give us a tonic with no trace of a bitter taste.

More Calories Consumed.—People in Britain last year used more butter, fat, eggs, sugar, syrups, fruit, cheese, meat, bacon, canned fish, tea, and cocoa than they did in 1953 but less milk, fish, poultry, flour, and vegetables. Provisional figures published in the *Board of Trade Journal* show that food eaten in 1954 represented an average per capita consumption of 3,120 calories a day, as compared with 3,000 calories in 1953, 2,950 in 1952, and 3,000 before the war.

Needless Dosing of Infants.—The *British Medical Journal* of July 16 includes a report by Dr. R. D. G. Creery on the questioning of the mothers of 200 children, aged 6 months to 3 years, who attended the Royal Belfast Hospital for Sick Children for BCG vaccination. Although apparently normal, 184 of these children had been given alkaline mixtures at some time. Magnesia had been given to 158, generally for the regulation of the bowels, and 133 had received carminatives, usually for "wind." Both magnesia and carminatives had been given to 107. The author believes that, although not actively harmful, the habit of dosing infants with alkalies is meddlesome and unnecessary and should be discouraged. These medicaments are not inexpensive and are often given for symptoms that exist only in the imagination of the mother. That their infants should defecate daily with absolute regularity amounts to an obsession with many mothers and seems to determine the frequent resort to magnesia. The crying fretfulness so often put down to flatulence may well be due to unsatisfied hunger for which carminatives are a poor remedy. One of the most popular of these mixtures contains about 4% of ethyl alcohol, a concentration not far below that of some brands of beer, stout, and cider.

Drug Used to Gain Courage.—The hope that the authorities would place Oblivon (Methyl Pentynol), known in the United States as Dormison, on the dangerous drug list was expressed by Justice Byrne, after he had been told that it could be purchased without a prescription. Two youths took Oblivon tablets to gain sufficient courage to burglarize a house at Ramsgate. After the burglary they stole a motorcycle and were involved in a crash in which one of them was killed. The surviving youth pleaded guilty to driving a motorcycle while under the influence of a drug, reckless driving, burglary, and theft. The prosecutor said that the two youths had bought 25 Oblivon tablets from a druggist. Although the normal dose is one or two tablets, the surviving youth had taken eight tablets in 24 hours. The effect was startling. When he broke into the house he had no sense of fear, and when he took the motorcycle, although he did not know how to drive, he had no sense of danger. The Poisons Board has now recommended that Oblivon should be classed as a poison, which may be sold only to persons known to the druggist, on a medical prescription, or on a police order, and that the purchaser must sign the poisons register.

Children in Hospital.—To reduce anxiety and help parents understand hospital regulations, the Central Middlesex Hospital gives a printed pamphlet to parents of children admitted. The pamphlet describes in simple terms the emotions of the child who is left in the hospital, and it makes some helpful suggestions. Daily visits are encouraged in order to increase the child's sense of security while in the hospital and to facilitate his readjustment when he returns home. These visits are restricted to parents who are advised not to promise to take the child home every time they see him but to tell him instead that he can come home as soon as he is better and that this is for the doctor to decide. Gifts of food are discouraged and, if candy is brought, it should be handed to the nurse who will pool all such gifts and share them equally among all the children on the ward after their meals. The pamphlet concludes: "Please don't listen to what your friends, neighbors, relatives, or other parents have to say about your child's illness. If you want to know how he is getting on, ask the nurse, and if necessary, she can arrange for you to see the doctor."

Blood Donors.—Blood donations to hospitals in England and Wales through the National Blood Transfusion Service in 1954 were higher than ever before. Last year 104,161 people gave blood for the first time, and by the end of December the total strength of the donors' panel was 540,389, an increase of nearly 25,000 as compared with 1953. To insure that no one need be asked to give blood more than twice a year, the National Blood Transfusion Service needs 650,000 regular volunteer donors.

Faith Healing.—The crowded chapel with the unscreened public in a state of mass hysteria is not the right atmosphere for spiritual healing, according to Dr. Weatherhead, president of the Methodist Conference, which convened in Manchester. Even though everything is done to exclude unhealthy emotionalism, it is almost always there, just below the surface. In such a situation, temporary cures are easy and are widely publicized, whereas the subsequent relapse gets little or no publicity. Few experiences, however, can be more bitter to the patient, because he is led to believe that the relapse is caused by a loss of faith, or he may conclude that religion is no good, when the truth may well be that he has mistaken suggestibility for faith and has tried to take a short cut in the treatment of a hysterical illness. Many people have foolishly delayed medical, surgical, or psychiatric treatment, waiting for the visit of some healer who is here today and gone tomorrow.

MEXICO

Symposium on Obesity.—At the symposium on obesity held in Mexico City in July, Dr. S. Aceves of Mexico City said that obesity is produced by hyperalimentation in 95% of the cases. Extreme obesity may produce fatty infiltration and diminished contractility of the myocardium with consequent coronary insufficiency or heart failure. Increased body weight increases the work of the heart. An increased coronary supply is demanded to meet the requirements, but obesity predisposes to coronary disease. In a group of 80 soldiers between the ages of 20 and 36 years who died from coronary disease, 72 were overweight. Obese patients are predisposed to sudden death from pulmonary embolism or fatty infiltration of the myocardium. The grave complications of arteriosclerosis (coronary occlusion and cerebral thrombosis) are frequent in the obese because the arterial lesions are acute from the start. In the obese patient with cardiovascular disease, a diet poor in fat and in cholesterol, administered for an indefinite period, would be beneficial, but such a regimen is impractical. Heparin should be given.

Dr. R. H. Haddad of the Mexican General Hospital said that every gram of extra fat in the obese patient calls for an added kilogram of circulation. When such a patient must be operated on, preoperative reduction of weight should be vigorously attempted. Spinal anesthesia is preferred except in patients with a systolic pressure below 100 mm. Hg, a spinal disease, or extreme nervousness. The tissues should be handled gently, perfect hemostasis maintained, and as little foreign material as possible introduced. Touching of the venous plexuses is avoided if possible. Early ambulation should be encouraged.

Adiposogenital Dystrophy.—Dr. J. Chávez Montes of the National Faculty of Medicine stated that the short stature of patients with adiposogenital dystrophy (Froehlich's syndrome) seems to be due to deficient secretion of thyroid and gonadal growth hormones. In the case of Simpson's adiposo-adreno-genital-hypophysial syndrome, which occurs exclusively in young boys, the stature may be either normal or supernormal but with eunuchoid proportions. Morgagni-Stewart-Morel's and Laurence-Moon-Biedl's syndromes are usually associated with dwarfism and hypogonadism. Pituitary basophilism, adrenal cortical hyperfunction, and the Achard-Thiers's syndrome are characterized by corticosuprarenal adiposity, mainly of the head, neck, and trunk. These diseases, appear in adults of normal stature. The adiposity is correctable by means of a proper diet. Bearded diabetic women may be either dwarfed or of normal stature. In patients with congenital athyreosis, thyroid extract causes improvement of the excessive weight, short stature, and retarded mental and physical development. A moderate degree of hyperinsulinism from pancreatic disorders can be the origin of an exaggerated adiposity and of diabetes mellitus. Gonadal obesity is characterized by accentuation of the fat distribution normal to each sex. The tendency to gain weight in the menopause is related to constitutional factors and not to gonadal activity.

Modification of Diet.—Dr. J. Q. Olascoaga of the National Institute of Nutrition stated that in obese children and young people the diet they are receiving when they are first seen in consultation should be continued because they are still growing. Only in rare cases is the diet modified, and then a minimum of 80% of the caloric needs of the patient should be given without reducing the protein, vitamin, or mineral intake. Obese adults may be given diets containing 30 to 60% of their caloric requirements provided liberal quantities of fresh milk; lean fresh meat; eggs; fresh fruits; fresh, uncooked, unsalted vegetables; and preserved fruits are given. Reducing diets should be adjusted in accordance with the age, work, climate, and economic condition of the patient. The sodium intake should be decreased and the potassium intake increased in obese patients with edema. Dr. S. Maynez Puente of the same institute said that in spite of the fact that the caloric value of normal diets has decreased since 1900, obesity has increased. This can be explained in part by the increase in life span, with consequent increase of the proportionate population in the older age group. Obesity is caused by an endocrine dysfunction in only 50% of the cases and by overeating in the rest. Toxicoses of pregnancy develop in 75% of obese women who are pregnant and in only 20% of those whose weight is normal.

SWEDEN

Mental Hygiene Reform.—In a memorandum to the Swedish government and to university, municipal, and other local authorities, the Swedish Medical Association and the Swedish Psychiatric Society have severely criticized the present state of affairs in the field of mental hygiene and have outlined an ambitious scheme for its reform. Even before the adoption of national health insurance at the beginning of 1955, the hospital and other social services were so effective that no one suffering from serious somatic disease had to fear neglect. It has been otherwise with mental disease. A large number of patients of the mental hospital are human beings whose diseases have become chronic because of defective welfare resources. Even those greatly in need of care cannot be accommodated, and frequently those who can be admitted cannot be treated adequately. Of a total of between 5,000 and 6,000 members of the medical profession, only about 400 are in the field of mental hygiene. Of these, 300 are employed in mental hospitals run by the state, municipal authorities, or psychiatric departments of general hospitals. Even at the cost of extending the medical curriculum by another month or two, provision must be made for more training in this particular field. The rate of remuneration for private practice in psychiatry must be raised. Research in psychiatry must be fostered. The memorandum is published in full in *Svenska läkartidningen* for July 22.

National Health Insurance.—At a meeting in May of the Jämtland County Medical Society, the working of the national health insurance scheme initiated at the beginning of this year was reviewed by a senior hospital surgeon, a district medical officer, and a private practitioner. All agreed that the clerical work, such as that entailed by the filling in of forms, had increased the day's work by about 10% at the expense of the medical care of the patient. As a result some overworked physicians now send more patients to the hospital for examination and treatment than formerly, and this means an additional burden for the hospital staff and an increase of the list of those awaiting admission. According to one calculation, the interval between application and admission has been increased by 25 to 33%. Care of the seriously ill patient is apt to be interfered with by a growing demand for the treatment of such minor ailments as birthmarks. Furthermore physicians are expected to decide whether a patient should get to the hospital by taxicab or by bus. Hospital laboratory work, already overburdened, has approached the breaking-point under present conditions. Various readjustments in the machinery of the scheme were called for, chiefly with a view to simplification of the clerical work imposed on the medical profession. The discussion is reported in *Svenska läkartidningen* for July 22, 1955.

Poliomyelitis.—Lindström and Grenhagen, in *Svenska läkartidningen* for July 15, reported that certain areas of Stockholm relatively free from poliomyelitis in 1953 were connected with beaches liable to pollution by sewage. On these beaches children could play and conceivably develop immunity to poliomyelitis. The authors of this study emphasize the quite tentative character of their findings, and they admit that its value is limited by the facts that they have dealt only with the city of Stockholm and that their investigation was limited to only one year. In *Nordisk medicin* for July 14, H. Dagulf draws attention to differences in the incidence of poliomyelitis as it has affected the city of Stockholm or its suburbs. In the former there were only 66 cases per 100,000 inhabitants, whereas the corresponding figure was 179 in the latter. The difference might to some extent be due to the number of children in the former being comparatively low, but this does not explain why the morbidity rate among adults was twice as high in the suburbs as in the center of the city. Another remarkable phenomenon was the upward shift of the adult age group affected. Between 1911 and 1913, 82% of all the cases concerned the age group from birth to 15 years. In 1953 the corresponding percentage was down to 47, and the ratio of adult to child victims quadrupled. About 60% of all the cases were paralytic, and the case fatality rate was 3%. The incidence of paralysis was higher among adults than among children, being 65 and 57% respectively. Multiple cases in households were recorded at 19.5%, with 176 cases in 80 families.

SWITZERLAND

Swiss Hospital Service.—There are 535 hospitals in Switzerland for a population of 4,500,000. The university cities of Basel, Bern, Zurich, Lausanne, and Geneva are clinical centers with all the specialties. They serve areas exceeding the boundaries of their respective cantons. Next to them, in order of their importance, are the cantonal hospitals of Aarau, Lucerne, and St. Gall. The rest of the cantonal hospitals and district hospitals each have from 50 to 300 beds, and their importance is only local. The psychiatric establishments are almost all cantonal institutions having several hundred beds. The tuberculosis sanatoriums are located in regions chosen for their climate and have marked differences in size, legal status, and financing. The larger cantons have their own sanatoriums. The sanatoriums are located for the most part in Davos, Leysin, and Montana and have many foreign patients, chiefly French, German, Belgian, and English. In Switzerland the organization of a public health service is the responsibility of the canton or the commune; the federal government hardly participates at all in hospital activity —the two big federal insurance companies, the Swiss National Fund in Case of Accidents and the Federal Military Insurance, do not have their own establishments. The central government does, however, participate actively in the fight against tuberculosis by granting subsidies to antituberculosis insurance and by contributing to the costs of treatment. There are also a number of private hospitals, many of which are connected with a particular religion. The other establishments that function as private enterprises are dying out.

Diversity of Service.—The Swiss hospital service reflects the diversity of the Swiss Confederation. There is no central directing idea in it, owing to the absence of a central coordinating power. Switzerland has 74 beds for each 10,000 inhabitants. The canton of Basel-City heads the list with 148 beds per 10,000 persons. Even before the last war, population growth and the success of treatments undertaken in hospital had forced the hospitals to enlarge. For about 10 years, the hospitals have been in a stage of great expansion. About 100 enlargements and constructions of new buildings were approved between 1940 and 1954, and the necessary credits granted amounted to 500 million Swiss francs. Zurich heads the list with a credit of about 200 million. The shortage of beds is due, in Switzerland, in part to aging of the population. Hospitals keep a number of patients over long periods, in spite of advances in therapy that speed recovery, and often have to care for patients with chronic disease indefinitely. The creation of rest homes is being considered. These would be simpler in set-up and would take the pressure off the hospitals. The financial situation of Swiss hospitals is difficult. The total deficit of all the hospitals is estimated at 100 million Swiss francs yearly. The price of one day's hospitalization varies according to the class of the establishment. The university hospitals are the costliest because of their larger staffs and and the expenses of research and teaching. The daily cost there is about 30 francs, as compared with 20 to 25 francs in the larger cantonal hospitals. A ward patient is not in a position to pay such amounts, and insurance companies cannot afford more than 10 francs a day toward the cost of each patient. The average amount paid to the hospital a day from ward patients is between 10 and 15 francs each. This accounts for the deficit.

Hospital Expenses of Cantons.—Since the hospitals vary so from canton to canton, the expenses of each canton also vary. The university cantons have the highest expenses. The absence of a central plan leads to some injustices in the hospital system. The university cantons finance research and teaching; in other words, they pay for the training of physicians who practice in all the cantons, but in some of the larger cantons, namely Zurich, Bern, Vaud, and Neuchatel; an effort is being made at systematization. The cantons of Basel-City and Basel-Country are a splendid example of intercantonal cooperation. Basel-Country has given over its hospital care to Basel-City and in return is paying large subsidies to public and private hospitals. One of the most important problems that has yet to be solved nationally and in the individual cantons is rehabilitation. This is a social responsibility that has led to remarkable achievements with regard to disabled veterans in France, England, the United States, and Russia. In Switzerland, there is an impressive attempt at coordination in the fight against poliomyelitis. Thus the general tendency now is for the cantons and communes to assume the burden of the increased costs in hospitalization.

Another difficult problem is that of lack of hospital personnel, because the pay of hospital employees is low compared with that of other places of employment. The wave of Italian, German, and Austrian help that is flooding the entire Swiss economy has extended to hospitals. Despite increases in actual salaries, lack of personnel makes itself felt in hospitals, especially with regard to the nursing and domestic staffs. While the Swiss hospitals permanently employ 200 to 300 foreign nurses, mainly Germans, about twice as many Swiss nurses are working abroad, where they are highly prized because of their qualifications. In spite of a propaganda campaign and the modernism of schools of nursing, the number of girls entering nurses' training is smaller than it should be, even though the financial conditions have been bettered. Hospitals must function often with inadequately trained help—nurse's aids and auxiliary nurses —because of the shortage of nurses. The worst effect of the scarcity in hospital personnel is that it has been impossible to introduce the 54 hour week, in spite of the good will of those interested. It has been necessary to maintain the 60 hour week.

TURKEY

Placenta Previa Accreta.—In the *Bulletin of Istanbul University Medical Faculty* (vol. 14, no. 3) Erez and Arisan reported on two patients with placenta previa accreta. A 37-year-old primipara had a hemorrhage during her seventh month of pregnancy. Five, three, and two years prior to admission she had had induced abortions. Twenty-eight days after admission a severe hemorrhage occurred and a cesarean section was performed. The child was born alive. The placenta previa centralis adhered so closely to the uterine wall that it was impossible to find any line of cleavage for placental separation. Attempted separation resulted in laceration of the myometrial serosa, and a total hysterectomy was performed. In microscopic examination, extensive diffusion of villi was noted in the placental serosa. The second patient was 32 years old. Three years prior to admission she had a normal delivery. Five, four, and two years before admission she had abortions (two spontaneous and one induced). She was eight months' pregnant when the mild painless hemorrhage for which she was admitted occurred. She had a sudden severe hemorrhage 24 hours after admission, and cesarean section was performed. The child was born alive. Because the close adherence of the posterior and lateral segments of the placenta prevented manual separation, a total hysterectomy was performed. Microscopic examination revealed that masses of villi had invaded the placental tissue.

CORRESPONDENCE

AMPHETAMINE IN MANAGEMENT OF ORDINARY (SYDENHAM'S) CHOREA

To the Editor:—The purpose of this communication is to point out the effectiveness of amphetamine for the relief of overactivity, restlessness, and involuntary movement in ordinary (Sydenham's) chorea. Review of a number of articles on chorea reveals that this drug, which I have found helpful, has not received recognition for its usefulness in this connection. My attention was first drawn to the possibilities of amphetamine in ordinary chorea by my experience with the following case.

The patient was a 16-year-old girl with a chief complaint of uncontrollable movements. These had become increasingly more severe over a period of one month. During this period, the patient had also become increasingly more irritable. She was overemotional, overactive, unreasonable, and so difficult to manage that she was considered to be psychotic and admitted first to a psychiatric unit. The medical history included frequent attacks of tonsillitis, with three recurrences during the month prior to the onset of her chorea.

Examination revealed almost continuous choreiform movements of the face and extremities. There was generalized hypotonia, with pendular reflexes and "silver fork" posture of the hands. The heart was normal. The temperature was normal, blood cell count and urine normal. The sedimentation rate was slightly elevated (31 mm. per hour corrected).

During the first four days after admission, the patient was treated with phenobarbital, 512 mg. per day, and was kept isolated and with minimum stimulation. Throughout this period she continued to be irrational and extremely restless, there being no evident change in her condition. On the fifth day, amphetamine sulfate, 15 mg., was given in addition to phenobarbital, 512 mg. On the sixth day, because of a favorable response, the amphetamine dosage was increased to 30 mg. per day. This dosage was continued, and the phenobarbital dosage was gradually reduced to 96 mg. per day by the 10th day and its use was discontinued on the 16th day. The patient's response to amphetamine was striking. Within 24 hours of the first dose she became quieter and more reasonable. Her restlessness was reduced, although definite choreiform movements continued. The patient was permitted to go home on the 17th day and continued to take amphetamine for a month at home, experiencing a gradual reduction of her choreiform movements to normal. In this original patient, it was not clear to what extent improvement was due to withdrawal of barbiturates and to what extent to the result of amphetamine. However, an additional six patients have now been treated, and this additional experience suggests that in this condition amphetamine itself has a beneficial and quieting effect.

The following case is another example of severe ordinary chorea benefited by amphetamine. The patient was an 11-year-old girl who had had an attack of ordinary chorea three years previously. At that time, treatment with sedation over a period of five days did not bring about improvement. She was given a course of fever therapy (typhoid), and over a period of 10 days gradually improved. However, at the end of this time, she was still confined to a wheel chair and could not write her name. Two weeks later she continued to be overemotional and showed definite chorea. Three weeks later, she seemed entirely well. She was subsequently admitted to the pediatric service of Dr. Weston Kelsey with a recurrence of her chorea. At this time she had definite evidence of cardiac involvement. The temperature, blood cell count, and urine were normal. The sedimentation rate was moderately elevated (33 mm. per hour corrected).

At the time of admission, the patient was overemotional and restless. She exhibited constant violent choreiform movements. Her movements were so incoordinate as to make it impossible for her to feed herself. Her speech was almost unintelligible. On the first day after admission she received phenobarbital, 128 mg., with no change in her condition. The following day therapy with phenobarbital was stopped and she was given amphetamine, 10 mg. The following day she was strikingly improved. Feeding continued to be difficult, but the patient was now able to handle a fork, requiring assistance only with liquids. She was able to write fairly well. Her speech improved markedly. Whereas previously she was depressed, her attitude became cheerful and relaxed and she rested well at night. After striking improvement with this medication, the condition became stationary after about four days, and it was evident that the actual course of the disease had not been altered. However, by the end of 12 days, she was showing only moderate choreiform movement, being able to write, feed herself, and move about with little disability.

It must be recognized that ordinary chorea is a disease exhibiting a variable course. The possibility that spontaneous remission may occur at any time must be considered in evaluating any recommended therapy. However, experience with the use of amphetamine in these two reported cases and four other similar cases strongly suggests that the drug has an important place in treatment. It does not produce overactivity. On the contrary, it has seemed to reduce restlessness, irritability, and involuntary movement. It is particularly valuable as an aid in the management of mentally disturbed or psychotic patients.

Richard L. Masland, M.D.
Professor of Neurology
Bowman Gray School of Medicine
Winston-Salem, N. C.

CONTACT DERMATITIS DUE TO CHLORPROMAZINE IN A DENTIST

To the Editor:—Lewis and Sawicky (*J. A. M. A.* 157:909 [March 12] 1955) in a report on two cases of contact dermatitis due to chlorpromazine (Thorazine) in nurses handling it advise that because of its extensive use, the danger of sensitization on frequent or long-continued contact must be kept in mind by both physicians and nurses. Our patient, a dentist working with psychotic patients at a state institution, developed a dermatitis of the fingers that contacted the saliva of patients who had been and were under treatment with daily doses of chlorpromazine as high as 1,000 mg.

The patient was first seen July 27, 1955. Five days previously she had noticed a patch of dermatitis on the right hand. Within the next few days she had an erythematous, exudative, crusted eruption of the dorsal terminal phalanges of the second, third, and fourth digits of both hands, more severe on the left. The palmar aspects were not involved. She had been treating the teeth of mental patients who had been receiving massive doses of chlorpromazine. Undoubtedly the drug excreted in saliva and present in traces in those patients treated with it orally sensitized her. A patch test with an aqueous solution of chlorpromazine caused itching within five hours, and an area of erythema and edema appeared and persisted at the test site for several days. Her hands responded to appropriate therapy with grenz radiation in 10 days. She was able to return to work using a protective silicone cream (Kerodex 76).

According to Lewis and Sawicky, as reported by the pharmaceutical firm manufacturing Thorazine, patch testing of 50 individuals showed no irritation or sensitivity. However, in the testing, daily and prolonged exposure to it as in this case, and in nurses and physicians, was not considered. With the increasing use of chlorpromazine, individuals constantly handling it or coming in contact with drug-laden secretions of patients under chlorpromazine therapy should be aware of the possibility of epidermal sensitization and institute means to prevent or minimize contact with it.

Frank C. Combes, M.D.
Milton Reisch, M.D.
104 E. 40th St.
New York 16.

RUBBER PROP FOR SYRINGE USED FOR INTRAVENOUSLY GIVEN ANESTHESIA

To the Editor:—Although many ways have been devised for the intravenous administration of anesthesia, the simplest method, the syringe and needle technique, remains very popular. Usually, a 20 cc. syringe is selected for the giving of the dilute barbiturate solution. A freely miscible muscle relaxant such as Syncurine may be included without complication of the method. A syringe prop is advantageous in two ways. If the hospital does not furnish eccentric-tip syringes, the prop, with the help of a few well-placed adhesive strips, will hold a regular syringe slanted at the right angle so that the needle tip remains securely placed within the lumen of the selected vein. With either the eccentric tip or a regular syringe, the prop makes the plunger most accessible to the fingers as the serial injections are given. It also facilitates manipulation of the tape used to restrain the plunger to prevent the backflow of blood.

An impromptu prop of gauze and adhesive tape is quite serviceable, but a special rubber one is even more satisfactory. This is easily made from a half of a rubber stopper measuring 2 in. across the top. Shaping is done in a vise by means of a knife and rasp and requires but a few minutes. This syringe prop fits and clings to the forearm. If it is fixed to the skin by a separate piece of 0.5 in. tape (see figure), the maneuver of switching syringes is made easy. When the rubber tubing of an intravenous drip set is punctured for the purpose of giving anesthesia, the prop assists in the technique. The prop is readily cleaned and will last for years.

Glenn J. Potter, M.D.
1332 S. Hope St.
Los Angeles 15.

THE DOCTORS FLINT

To the Editor:—A long medical dynasty has come to an end, and it would seem appropriate to publicly acknowledge medicine's debt to a famous family. On July 20, 1955, Dr. Austin Flint died in the Doctor's Hospital in New York City at the age of 87, having in his time been professor of obstetrics at Bellevue Hospital Medical College and later at New York University when these institutions amalgamated. He also had held several important consultant posts. A graduate of Phillips Academy, Andover, Mass., and of Bellevue Hospital Medical College, he also held an honorary master's degree, given him by Princeton in 1894.

Four physicians bore the name of Austin Flint. There were, in addition, other physicians in the family. The first Flint to study and practice medicine was Edward (1733-1818), who spent his life in Massachusetts. One of Edward's sons was the first Dr. Austin Flint (1760-1850), who witnessed the surrender of Burgoyne and took part in quelling the Shays Rebellion. He, too, spent most of his life in Massachusetts. As an example of his reputation as a physician he was granted, I am told, an honorary M.D. degree by Harvard. One of his sons, Dr. Joseph Henshaw Flint (1786-1846) was next in line and was also honored by Harvard in the same manner. Dr. Joseph's first-born was Austin (1812-1886), graduate of Harvard Medical School in 1833, co-founder of the Buffalo Medical College, founder of the *Buffalo Medical Journal*, and professor of medicine for brief periods at Rush, Louisville, and New Orleans. He spent the greater part of his professional life at Bellevue. It was this Austin who described the Austin Flint murmur and who wrote several celebrated textbooks. In addition to many other honors, he served as president of the New York Academy of Medicine, and in 1884 he was President of the American Medical Association. He was, indeed, one of the greatest of American physicians.

Austin III (1836-1915) graduated from Jefferson in 1857, became professor of physiology at Buffalo, and later assumed the same post at Bellevue. His textbook on physiology was a standard work for years, and he gained an international reputation in experimental physiology, particularly in studies on the urine and on muscle. His interest in the physiology of the brain led him to a high reputation as an alienist. Now his son Austin IV (1868-1955) has gone, and there is no direct descendant in medicine who bears the honorable name of Flint. There cannot be many families with six physicians in direct succession, and certainly there are few families that have done as much for American medicine.

Edmund E. Simpson, M.D.
2615 Eye St.
Sacramento, Calif.

ATARAKTOS

To the Editor:—In an interesting commentary (The Journal, Aug. 20, page 1461) Dr. Howard D. Fabing proposes the "tranquilizing agents," i. e., Rauwolfia serpentina, derivatives therefrom, chlorpromazine, and frenquel, be designated as ataraxics, the latter term being derived from the Greek word *ataraktos*, meaning freedom from confusion and peace of mind. It should be of interest to Dr. Fabing as well as readers of The Journal that some months ago the name Atarax was assigned to the compound 1-*p*-chlorobenzhydryl-4,2-(2-hydroxyethoxy)ethyldiethylenediamine hydrochloride by Dr. F. Martin, Union Chimique, Brussels, Belgium. Atarax, a close chemical relative of both Meclizine and Buclizine, is neither a good antihistaminic nor a good antiemetic agent as are the latter two compounds but has shown promise in Europe as a less toxic substitute for chlorpromazine.

Robert O. Bauer, M.D.
Department of Anesthesiology
Roswell Park Memorial Institute
Buffalo 3.

RESEARCH ON MUSCULAR STRUCTURE AND FUNCTION

To the Editor:—Having opened a laboratory for the examination of muscles in Budapest in May, 1955, we would appreciate receiving reprints on muscular structure and function and related subjects from anyone engaged in this type of work. We are especially interested in the reactions of the body through functional changes in muscles.

Endre Szirmai, M.D.
Eörs Bajusz
Véralvadáséletttani
És Gyakorlati Izomvizsgáló Laboratórium
(Laboratory for Coagulation of Blood and
Practical Examination of Muscles)
IV Árpád-Ut 124-126
Budapest, Hungary

ELECTRONIC TONOMETER

To the Editor:—The interesting editorial "Electronics in the Service of Medicine" in the June 25, 1955, issue of The Journal, page 656, did not mention the electronic tonometer, which has contributed so much to the better understanding of intraocular fluid circulation and glaucoma.

K. W. Ascher, M.D.
2914 Vernon Pl.
Cincinnati 19.

LAW DEPARTMENT

MEDICOLEGAL ABSTRACTS

Chiropractors: Injury to Spinal Meninges During Adjustments.—The plaintiff filed suit for damages against the defendant chiropractor for having negligently caused the death of his wife. From a judgment in favor of the plaintiff, the defendant appealed to the Springfield court of appeals, Missouri. The plaintiff's wife was suffering from a stiff neck, eye trouble, and occasional headaches. She consulted her family physician who gave her a thorough examination and told her that she was suffering from muscular strain and that she needed spectacles. Thereafter, on the advice of a neighbor she went to see the defendant chiropractor. He told her that she had some misplaced vertebrae. The plaintiff, who was present when the defendant examined and treated his wife, testified that the defendant had his wife lie face down on a self-tripping (high-lo) table and that he commenced manipulating her spine, proceeding upward toward her neck. The defendant then adjusted the table top to a perpendicular position, with the patient standing facing the table top, and asked her to see how far she could move her head to the right and to the left. After she demonstrated this point, the defendant grabbed her head and jerked it violently in one direction and then in the other. Each time something popped, and the patient screamed. She then said several times, "I'm falling," but the defendant proceeded to gouge and punch her neck and to roll her head around. The patient was then helped to a chair by the defendant and her husband. She could not hold her head up, her face and hands were numb, and she began to vomit. She said that she did not hurt anywhere, but apparently she was in convulsions. She was helped to a cot, where she continued to vomit and was without control of her movements. Subsequently, the defendant summoned a physician from a nearby office who recommended taking the patient to a hospital. This was immediately done, but the patient remained in much the same condition until she died about 18 hours later.

The physician whom the defendant had called filled out a death certificate indicating the cause of death to be a ruptured congenital aneurysm. A few weeks later the plaintiff had his wife's body exhumed for the purpose of an autopsy. A complete autopsy was made, including an examination of the peritoneum, liver, pleural cavities, lungs, heart, pericardium, heart muscles and valves, aorta, abdominal aorta, kidneys, uterus, brain, membranes, and blood vessels. A portion of the spinal column, consisting of the atlas, axis, and third cervical vertebra, was removed for a separate examination. The autopsy revealed that there was only one condition in the body that could have caused death and that that was an injury to the spinal meninges resulting in intraspinal bleeding and compression of the spinal cord. The examination failed to show a displacement of any of the vertebrae. This opinion was corroborated by another pathologist who examined the removed specimen. The expert witnesses at the trial gave their opinion that the injury could have been caused by the defendant's actions in manipulating the deceased wife's head and neck. Neither the autopsy nor any other evidence corroborated the original diagnosis of a ruptured congenital aneurysm. Two chiropractors, qualified at the trial as expert witnesses on behalf of the defendant, testified that the defendant had done nothing in treating the deceased woman that was not in accordance with the accepted practice of chiropractors generally in that community. One of them admitted, however, that if the adjustment were properly made there would be no chance of injuring a patient.

The defendant first urged that the plaintiff had failed to show that he had acted negligently. The court held that, although the defendant's witnesses had denied that the defendant had done anything other than what was considered as acceptable practice, the jury was not bound by such testimony. From the facts of the case, as presented by the plaintiff's witnesses, the jury could conclude that the defendant must have acted negligently, even though no expert witnesses stated an opinion to that effect. From the further fact that there actually was no displacement of the deceased woman's vertebrae and that the defendant continued his manipulations after the patient evidenced pain, a lay jury could conclude that the defendant did not act in accordance with the accepted standard of practice among chiropractors generally in that community. When a drastic injury occurs to an otherwise healthy portion of the body as a result of chiropractic manipulations, said the court, a jury may conclude that the manipulator acted negligently. The defendant also argued that the plaintiff had failed to show that the injury to his wife resulted from his manipulations. The court rejected this argument since the facts showing the continuity of events indicated that the defendant's acts constituted the causative factor, that there was testimony by competent witnesses to the effect that the injury could have been caused by the defendant's acts, and that the evidence failed to show any other events that might have caused the condition leading to the death of the plaintiff's wife. Other contentions of the defendant were overruled, and the judgment against the defendant chiropractor was accordingly affirmed. *York v. Daniels, 259 S. W. (2d) 109 (Mo., 1953).*

Governmental Hospitals: Liability of Hospital District for Burns Negligently Inflicted on Paying Patient.—The plaintiff filed an action for personal injuries, alleging that while she was a patient in the defendant's hospital she suffered severe burns due to the negligence of the hospital's agents in carelessly applying hot water bottles to her legs when she was under anesthesia. The trial court dismissed the complaint for failure to state a cause of action, so the plaintiff appealed to the Supreme Court of California.

The defendant hospital district was organized under the California Health and Safety Code, which provides for the creation of such hospital districts with the approval of a majority of the voters of each district. The statute provides that the hospitals owned or leased by the districts are to be operated in the best interests of the public health. They may not render professional services but may contract for such services with physicians and surgeons, provided that no profit or gain accrues to the district as a result of such contracts. Rates are to be established that will, so far as possible, make the hospitals self-supporting. The districts also have the power to levy taxes.

The Supreme Court held that the defendant hospital district was a public agency performing a governmental function and was therefore immune from suit without consent of the state. It was further held that such consent had not been given in California, notwithstanding the existence of a statute that set up a procedure for suing the state in a tort. That statute was construed as not extending the tort liability of the state but as providing a procedure for suit where the state was liable under existing rules of law. The Supreme Court said that the district was created primarily for the purpose of protecting the public health, especially in rural areas where the cost of private hospitals would be prohibitive, and that the fact that fees were charged for the services of the hospital did not affect the governmental nature of the function performed. The judgment dismissing the plaintiff's complaint was accordingly affirmed. *Talley v. Northern San Diego County Hospital District, 257 P. (2d) 22 (Calif., 1953).*

Malpractice: Application of Res Ipsa Loquitur.—The plaintiff filed suit for malpractice against the defendant physician. From an adverse judgment he appealed to the Supreme Court of Washington. The plaintiff visited the office of the defendant physician to determine the cause of an excessive amount of phlegm in his throat. At the time of the visit, the plaintiff's voice was clear and normal. The defendant's examination disclosed two small growths on the plaintiff's vocal cords near their apex. These growths were subsequently removed, and immediately thereafter, and up to the time of trial, the plaintiff's voice became hoarse, low-pitched, and difficult to understand, so that he was unable to continue his employment.

On appeal, the plaintiff argued that the defendant's negligence was so grossly apparent that no further evidence was necessary. The Supreme Court rejected this argument. The Court held that as a general rule the negligence of a doctor can be established only by expert medical testimony. A doctor is deemed negligent only if he departs from the normal standards of practice of his community. The standards of the community in question and the question of whether or not the defendant departed from them can be established only by expert medical testimony. Furthermore, said the Court, the cause of the plaintiff's voice condition was a medical cause, and proof of a medical cause must be made by medical experts. The only exception to the rule requiring expert medical testimony is that class of cases in which the doctrine of *res ipsa loquitur* is applied—that is, cases in which the doctor's negligence is so apparent that the negligence can be easily recognized by the laymen on the jury. The Court held that this case did not involve negligence so apparent that expert testimony was unnecessary. Accordingly, the Court affirmed the judgment in favor of the defendant physician. *Nelson v. Murphy, 258 P. 2d 472 (Wash., 1953).*

MISCELLANY

MEETING OF PAN AMERICAN HEALTH OFFICIALS

Directing Council.—The eighth meeting of the Pan American Sanitary Organization's directing council was held in Washington, D. C., in September under chairmanship of Dr. Hector A. Coll, Director General of Public Health in Argentina. The council, composed of delegates from the 21 American republics and France, the Netherlands, and the United Kingdom on behalf of their territories in the Western Hemisphere, meets annually to review the work of the Pan American Sanitary Bureau. Dr. Juan Allwood Paredes, Director General of Public Health in El Salvador, and Dr. Bernardo Henao Mejía, Minister of Public Health in Colombia, were elected vice-chairmen. A budget of $2,200,000 was voted for the year 1956 for continuation of the health programs to be carried out with the guidance of the bureau: also available will be $1,181,365 already allocated to this region by World Health Organization for 1956 and other funds, notably from this region's share of technical assistance money apportioned to WHO by the United Nations, and funds allocated for public health work by the United Nations International Children's Emergency Fund. These funds will be used in about 130 integrated public health programs to be carried out by member governments with the technical assistance and orientation of the bureau.

Long-Range Health Programs.—The council, noting that several member governments have already drawn up plans for their public health programs and budgets for the years 1957 to 1960, urged others to take similar action. The 130 projects to be implemented by the bureau in 1956 cover practically all phases of public health in the Americas. Many are a continuation of existing projects, some of which will be carried forward for several years. Training and education will continue to be an important aspect of the sanitary organization's activities. In the coming year more than 300 fellowships will be granted by the bureau in connection with specific projects, and a number of seminars will be arranged to facilitate the interchange of ideas among health officials of the various countries. Several representatives emphasized that eradication of communicable diseases amenable to such treatment is far cheaper in the long run than the continuous control measures that have been the general rule.

Malaria Eradication.—This year the bureau established a coordination office for the malaria eradication program, with headquarters in Mexico City, Mexico, to coordinate the total continent-wide malaria eradication program. The concept of hemisphere-wide eradication was supported by the council. In reports presented by nearly all representatives on the status of their national antimalaria campaigns, emphasis was placed on the necessity to attack the Anopheles mosquito on a broad front before it develops resistance to the residual insecticides. Malaria is a growing problem where industries are established in malarious regions or where industry draws workers from infested areas. About 300 million cases of malaria still occur annually throughout the world, taking a yearly toll of 3 million lives. Although malaria eradication has been universally accepted, much work and large sums of money will be needed before it becomes a reality. The main burden and responsibility for the program will continue to rest with national governments, with a need for substantial help from international sources.

Yaws and Other Diseases.—The eradication of yaws in Haiti is now practically accomplished. The bureau will assist other governments in yaws eradication during the coming year. This crippling disease still causes untold suffering and economic loss in a number of countries in the Americas and in several islands of the Caribbean. Campaigns aimed at the eradication of smallpox, venereal diseases, and the Aedes aegypti mosquito were also among programs approved for the coming year. Tuberculosis control, environmental sanitation, public health nursing, maternal and child health, and nutrition are included in other projects. Tuberculosis, which used to be the worst killer in many countries, is now being brought under control, and its eradication may be envisioned for the future.

Director's Report for 1954.—The annual report of the bureau director, Dr. Fred L. Soper, was approved by the council. It made a comprehensive survey of the projects in which the Pan American Sanitary Bureau had collaborated with the various health administrations throughout the Americas. These included 77 national health programs in 27 countries and territories, 30 intercountry and continent-wide health programs, and 6 interregional projects. The bureau's work may be divided roughly into three categories: (1) work in connection with the communicable diseases, with emphasis on eradication; (2) strengthening of national public health administrations and coordinating of all services contributing to the health of the population (integration); and (3) training of personnel (education).

Executive Committee.—The seven-member executive committee, which acts as the sanitary organization's governing body when the council is not in session, held brief sessions before and after the council meeting. This year Brazil, Haiti, and Panama completed their three year terms and the directing council elected Bolivia, Cuba, and Nicaragua to fill the vacant seats. Dr. Jiménez Gandica of Colombia was elected chairman of the committee, until its next meeting in April. The four other members are Argentina, Colombia, Paraguay, and the United States.

MEDICAL FILM REVIEWS

NEW FILM ADDED TO A. M. A. MOTION PICTURE LIBRARY

The Heart—How It Works: Health and Safety for You Series: 16 mm., black and white, sound, showing time 12 minutes. Educational consultants: Harold S. Diehl, M.D., and Anita Laton, Ph.D. Produced in 1955 by Audio Productions, New York, for the McGraw-Hill Book Company. Procurable on loan (service charge $2) from Committee on Motion Pictures and Medical Television, American Medical Association, 535 N. Dearborn St., Chicago 10.

This film, by magnified sound, shows how a normal heartbeat sounds through a stethoscope. It then illustrates the structure of the heart, shows the function of its parts, and traces the flow of blood through the heart. Ways of examining the heart and facts about its work load are also given. Some suggestions are made on how to maintain a healthy heart. This film gives an idea of how the heart works and presents astonishing figures about its performance. It is commendable that too much material is not covered. The diagrams showing the action of the heart and the x-rays of the heart are excellent. This is a short, attractive film and is recommended for high school students and adult audiences.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Evaluation of the Calibrated Displacement, Velocity, and Acceleration Ballistocardiograph in Angina Pectoris. J. E. Smith, L. G. Lederer and J. C. Mandes. Am. Heart J. 49:344-359 (March) 1955 [St. Louis].

Twenty patients with angina pectoris were studied with resting electrocardiograms, exercise electrocardiograms, and the calibrated bar magnet ballistocardiograph that measures the displacement, velocity, and acceleration components of body motion simultaneously. The ballistocardiograms of 8 of the 20 patients are described in detail. The ballistocardiograms of all 20 patients showed consistent evidence of abnormality. The resting electrocardiograms were frequently normal or nonspecific. The exercise electrocardiograms were positive in only 50% of the patients. The ballistocardiogram thus was a more sensitive index of abnormality than the electrocardiogram. However, the techniques of measuring motion must be reemphasized. The concept of motion measurement should involve the following principles. Instrumentation should have a linear frequency response from ⅓ of a cycle to at least 16 cycles. Calibration of signal output should be attempted, since amplitudes will not be amenable to comparison among clinicians unless this is done. The motion to be measured should approach a single degree of freedom concept and the distortion produced by the instruments kept at a minimum. There should be no ambient vibration interference from the buildings or ballistocardiograph tables to which the instruments are coupled. The results of the authors' study indicate that definite patterns of abnormality can be obtained in most patients with angina pectoris caused by coronary heart disease if instrumentation and techniques are utilized that fill the demands of proper motion measurement. The diagnostic value of signal differentiation (acceleration) was shown in emphasizing abnormality of form.

A Technique for Recording Carotid Artery Pulsations with Special Reference to Aortic Stenosis. J. E. Smith. Am. Heart J. 49:428-436 (March) 1955 [St. Louis].

In 16 patients with aortic stenosis, pulsations of the carotid arteries, which are easily accessible and close to the centrally generated anacrotic vibrations resulting from aortic stenosis, were recorded through the skin and subcutaneous tissue over the carotid arteries in the neck. A cup was placed over the carotid arteries that could be firmly applied by means of a wooden halter-type neckpiece with an adjustable clamp. A piece of flexible rubber tubing from the cup on the neckpiece was led into a crystal-type pickup that produced an electrical signal proportional to pressure changes in the tubing. Clinical studies indicated that a tubing length of 4 ft. would be ideal. A simple type of differentiation of the signal could be accomplished by utilizing the natural frequency of the air column in the system of closed elastic tubing. This technique is, in essence, the application of a simple Helmholtz resonator. Results showed that it can be used effectively to emphasize the anacrotic vibrations of aortic stenosis when adjusted to the proper frequencies. Of the 16 patients, 12 had "pure" stenosis of the aortic valve, two aortic stenosis and concomitant aortic insufficiency, and two aortic stenosis and probable mitral stenosis. There seemed to be no direct relationship of the amplitudes of anacrotic vibrations to severity of the stenosis. While this is extremely difficult to quantitate, the analysis of functional ability and the ballistocardiograph would indicate that the compensatory myocardial factors are as important as the severity of the stenosis in the production of these vibrations. It is suggested that the amplitudes of recorded vibrations are related to the ability of the left ventricle to accelerate blood forcefully, and thus the forces generated during ventricular systole against a stenotic orifice play an extremely important part in the amplitudes of anacrotic vibrations. These factors seem to be as important as the severity of the stenosis in the cases studied. In patients with aortic stenosis, techniques of pulse tracing and recording instrumentation should be carefully evaluated before any attempt is made to determine physiological significance.

Tuberculous Pleurisy with Effusion. J. A. Myers. A. M. A. Arch. Int. Med. 96:191-201 (Aug.) 1955 [Chicago].

The observations reviewed by Myers were begun in 1920 and were made mainly on groups of school children, university and nursing school students, and persons of various ages in chest clinics and private practice. Tuberculous pleurisy with effusion occurs in persons who have no demonstrable clinical pulmonary tuberculosis and is usually caused by subpleural lesions resulting from focalization of tubercle bacilli after their first invasion. Pleurisy with effusion is usually an allergic phenomenon, the tissues having become sensitized to tuberculoprotein during the first weeks after the initial invasion. Many effusions develop within a few months after the allergy is established. However, they may appear decades later. They occur among tuberculin reactors of all ages from infancy through senility. This report includes 260 persons who had clinically diagnosed tuberculous pleurisy with effusion. None had demonstrable evidence of pulmonary reinfection type of tuberculosis when pleurisy appeared. All reacted to tuberculin, and all had 300 or more cubic centimeters of fluid that was demonstrable by x-ray film inspection. Although recovery of tubercle bacilli is the only incontrovertible diagnostic criterion, they were found in only 76 of this group. In another 116 in whom aspiration was done, organisms were not found, and aspiration was not carried out on the remaining 68 patients. It is now recommended that as much fluid as possible be removed and studied bacteriologically. If this fails, pleural biopsy or surgical exploration may be necessary to determine whether long treatment for tuberculosis is justified. The patients received the treatments that were in vogue at the time they were under observation. It is now recommended that the pleural space be kept as dry as possible; that strict bed rest be employed for at least six months, with graduated exercises for the succeeding six months; and that antimicrobial drugs be administered for at least one year after diagnosis. Treatment is directed not only to pleurisy but also to the underlying cause. Immediate recovery resulted in all patients in this series regardless of treatment. Remote prognosis depends upon conditions existing before pleurisy occurs rather than upon the effusion. Immediately after the initial invasion, tubercle bacilli are focalized not only in the lungs but in various other parts of the body. Any one or more such foci that continue to harbor tubercle bacilli may subsequently release organisms that result in clinical lesions. Pleurisy with effusion is only one of the numerous immediate and remote possibilities. It is doubtful that pleural effusion per se has any effect on subsequent developments. Of the 260 persons constituting this group, 247 (95%) were traced. Eleven had died from nontuberculous conditions. The reinfection type of tuberculosis developed in 23 of the remaining 236 patients. The ultimate prognosis cannot be estimated, because tuberculosis is a lifetime disease, and new lesions may yet appear and old ones may become reactivated. It is suggested that

---

The place of publication of the periodicals appears in brackets preceding each abstract.

Periodicals on file in the Library of the American Medical Association may be borrowed by members of the Association or its student organization and by individuals in continental United States or Canada who subscribe to its scientific periodicals. Requests for periodicals should be addressed "Library, American Medical Association." Periodical files cover 1946 to date only, and no photoduplication services are available. No charge is made to members, but the fee for others is 15 cents in stamps for each item. Only three periodicals may be borrowed at one time, and they must not be kept longer than five days. Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

pleurisy with effusion, like other clinical forms of tuberculosis, may perhaps be prevented by administering antituberculosis drugs promptly after tuberculin conversion while lesions are small and vascular.

The Middle Lobes in Tuberculosis. E. Minetto and S. Pettinati. Minerva med. 46:1749-1756 (June 16) 1955 (In Italian) [Turin, Italy].

Lesions of the middle lobes were found in 82 (13.4%) of the 618 tuberculous patients of a Turin sanatorium. They were located in the right middle lobe in 34, in the lingula in 45, and in both areas in 3. There was evidence that the lesions were primary in only three (0.49%) patients. They were located in the right middle lobe in one case, in the lingula in the second, and in both areas in the third. These findings confirm the rare occurrence of primary tuberculosis in the middle lobes. In the other 79 patients, the disease in the middle lobes was secondary to lesions that were located in the thoracic and apical segments of the upper lobe in 74 cases and in the apical segment of the lower lobe, the so-called Fowler's lobe, in 5. A study of the time of onset and of the clinical and radiological characteristics of these secondary lesions indicated that they had spread by the bronchogenic route. While this route of dissemination has been accepted for secondary lesions to the lingula, which is considered by many the location of choice for bronchogenic dissemination, the same is not true for secondary lesions to the right middle lobe. Yet in this series there were 44 cases of bronchogenic secondary lesions to the lingula and 33 to the right middle lobe. There were only 5 cases of dissemination from the left side to the right middle lobe as compared with 28 cases of homolateral spreading. The respective figures for the lesions to the lingula were 17 as compared with 27. The evolution of the tuberculous lesions in the middle lobes was also studied. Ulceration was found in 11 (13.5%) patients in whom the lesions were secondary: five times in the right middle lobe and six times in the lingula. It was present in the involved lobe of all the three patients in whom the lesions were primary. In many patients in whom the disease to the middle lobe is secondary, these lesions do not undergo cavitation. They are benign, can be treated with antibiotics, and either the parenchyma can be restored to health or fibrotic retraction of the lobe may result. When the bronchogenic lesions of the middle lobes do undergo cavitation, antibiotic therapy may be given. If this fails, surgery, namely exeresis, should be performed. This should also be the treatment of choice for those rare cases of primary tuberculous lesions to the middle lobes that undergo ulceration.

Mesenteric Lymphadenitis. E. R. Bonfigli. Minerva med. 46:1688-1695 (June 9) 1955 (In Italian) [Turin, Italy].

A differentiation is made of mesenteric lymphadenitis into: (1) Ball's tabes mesenterica or caseous tuberculosis of the mesenteric lymph nodes, (2) acute nonspecific mesenteric lymphadenitis, and (3) chronic nonspecific mesenteric lymphadenitis. These three syndromes should be considered as distinct conditions that have in common only the organ they affect. The causative factor is tuberculosis in the first syndrome and nonspecific and perhaps multiple in the other two. The pathogenesis is uncertain and the route of infection may be enterogenous, hematogenous, or lymphogenous. The pathological findings are characterized by caseous necrosis in the first syndrome, acute inflammation (purulent or hyperplastic) in the second, and chronic hyperplastic, rarely calcific, nonspecific inflammation in the third. The clinical course is acute, sometimes dramatic, in acute mesenteric lymphadenitis and extremely chronic in the chronic form. Differential diagnosis is not easy, especially with regard to acute appendicitis. The prognosis is grave for the first two syndromes, but rather benign for the third. Treatment varies; it is antituberculous in Ball's tabes mesenterica, surgical in most cases of acute mesenteric lymphadenitis, and antilymphatic (vitamins and arsenic) in chronic mesenteric lymphadenitis. In the latter, seashore heliotherapy, ultraviolet rays, and, sometimes, operation are indicated.

The Diagnosis of Bronchogenic Carcinoma in Patients with Pulmonary Tuberculosis. M. E. Shafran and J. Kavee. A. M. A. Arch. Int. Med. 96:157-167 (Aug.) 1955 [Chicago].

During a 12 month period at Montefiore Hospital, the antemortem diagnosis of coexisting bronchogenic carcinoma and pulmonary tuberculosis was made and confirmed in six patients, all of whom were men between the ages of 45 and 69. The histories of the six patients are presented and discussed. Five of the six were originally admitted to a tuberculosis ward with a diagnosis of pulmonary tuberculosis. One was admitted to the nontuberculous pulmonary service, since activity of the tuberculous process had been ruled out by studies in the outpatient department. Three of the patients had active pulmonary tuberculosis, in that tubercle bacilli were found in the sputum, and in two of these three cavitation was demonstrable by roentgenologic examination. The other three patients were considered to have inactive pulmonary tuberculosis. The diagnosis of pulmonary neoplasm was suspected at the time of admission in four of the patients. In two of these a round homogeneous density with fuzzy circumference aroused suspicion. In a third patient the characteristic wedge-shaped lesion extending upward from the right hilum with linear projections at the periphery of the lesion strongly suggested a bronchogenic carcinoma. A fourth patient had right upper lobe atelectasis with elevation of the horizontal fissure, which suggested a neoplasm of the appropriate bronchus. In the two other patients the suspicion of malignant disease was aroused when it was noted that there was extension and growth of the lesion on serial x-rays, with concomitant regression of the tuberculosis elsewhere in the lungs on a regimen of adequate antituberculous chemotherapy and bed rest. When the confirmatory diagnostic studies, such as bronchoscopy, cytological examination of sputum and bronchial washings, biopsy of bronchial mucosa, and excision of the scalene fat pads, failed to provide a definitive diagnosis, exploratory thoracotomy was resorted to. The authors feel that, in any patient who shows roentgenologic regression of tuberculous densities on rest and adequate chemotherapy and simultaneous growth or failure of another noncalcific lesion to improve, one may strongly suspect the coexistence of carcinoma of the lung and pulmonary tuberculosis. Patients with pulmonary tuberculosis present a unique opportunity for early discovery of bronchogenic carcinoma, since they undergo frequent roentgenologic examination of the chest. With the increasing frequency of lung cancers and with the shifting incidence of pulmonary tuberculosis into the older age groups, it is important that physicians treating pulmonary tuberculosis be aware of the increasing incidence of bronchogenic carcinoma in these patients.

Natural Duration of Bronchial Carcinoma. J. R. Rignall. Lancet 2:210-214 (July 30) 1955 [London, England].

During 1951 and 1952, 637 patients with bronchial carcinoma were seen at two London hospitals. Of these, 135 were treated surgically, 210 by radiotherapy, and 292 received no treatment likely to prolong life materially. In 255 of this untreated group, sufficient information was available to study the natural duration of the disease. Half of the 255 patients died within nine months from the appearance of the first symptoms, but 14% survived two years or longer. The duration of life from the start of symptoms was found to be significantly influenced by the histological type, the duration of illness before diagnosis, and the presence of metastasis at diagnosis. It appeared to depend, though to a lesser extent, on the nature of the first symptom and the age of the patient; but it was not materially influenced by sex or by the lobe in which the tumor occured. The relation of the duration of life after diagnosis to the length of history before diagnosis is not a simple one. The poorest prognosis was found in those who had had symptoms for four or five months before diagnosis, half of whom died in the next three months. Half of those with symptoms for a year or more lived for a further seven months, and almost a third lived for another year. Published reports and clinical experience suggest that the survival of patients treated by radiotherapy is certainly not strikingly different from those untreated, and the alleged prolonga-

tion of life is not self-evident. Moreover, unless patients have been alloted at random to treated and untreated groups, those given long courses of radiotherapy will almost certainly be better risks than those not treated, who usually are severely ill or cachectic or have widespread metastases.

Use of Corticotropin Gel and Cortisone in Treatment of Severe and Intractable Asthma. B. M. Davies and D. A. Williams. Brit. M. J. *2:293-296* (July 30) 1955 [London, England].

The authors are concerned chiefly with the results of short-term therapy, presenting the effects of treating 44 patients with chronic asthma and 6 with chronic bronchitis with 57 and 7 courses, respectively, of cortisone, corticotropin gel, and/or hydrocortisone. Eleven of the asthmatics were in status asthmaticus; the remaining 33 had intractable asthma. In the asthmatics, 87.5% of the courses gave good results. The temporary relief afforded lasted an average of 30 days but ranged from 1 day to 240 days. In about half of these patients with severe asthma, continuation of hormonal therapy proved unnecessary, but continuation seemed desirable in from 40 to 50% of the patients. This corresponds with the observations of other investigators. Continuous hormonal therapy is beset with risks and requires careful supervision, but short courses seem to be quite safe, if care is taken in the selection of patients. Contraindications to treatment with these hormones were ascertained by a careful history, special inquiry being made about peptic ulcer. Dosage schemes should not be laid down by rule of thumb but should depend on the severity of the asthma and on the patient's response. It is important to distinguish between asthma and bronchitis. The authors observed failure of response in a patient who had purulent sputum but also a marked drop in eosinophils. This patient's condition later improved in response to antibiotics and general measures. Possibly the hormones relieve asthma due to nonpurulent obstruction of the bronchi but fail to relieve the obstruction due to a frankly purulent bronchitis.

Complications of Oxytetracycline and Tetracycline Therapy Related to a Defined Type of Resistant Staphylococcus. J. Brodie, W. Jamieson and T. Sommerville. Lancet *2:223-225* (July 30) 1955 [London, England].

Complications arising in the course of antibiotic therapy have been attributed to antibiotic-resistant strains of micrococci (staphylococci). These complications, which include gastroenterocolitis, sore throat with scarlatiniform rash, sore throat without such rash, balanitis with scarlatina, and urinary infection, have been observed chiefly following the broad spectrum antibiotics, namely, chloramphenicol, chlortetracycline (Aureomycin), oxytetracycline (Terramycin), and tetracycline. The following questions arise with regard to these complications. Are they caused by micrococcic (staphylococcic) infections? Is a special type of Micrococcus (Staphylococcus) responsible? If so, does hospital cross-infection play a part? What connection is there between the complications and the antibiotics? The authors inquired into these questions at the time of a therapeutic trial of antibiotics in bacillary dysentery. They found that, during treatment of bacillary dysentery with oxytetracycline and tetracycline, some of the patients showed complications, especially scarlet fever, sore throat without rash, and gastroenteritis. These complications seemingly were caused by cross infection with a hospital Micrococcus (Staphylococcus) of defined type. The term ac/-POCST, applied to this type, implies that it is agglutinated by absorbed serums "a" and "c" (only) in the live state, is not agglutinated by absorbed serums in the autoclaved state, and is resistant to penicillin, oxytetracycline, chlortetracycline, streptomycin, and tetracycline. The close association of the type of Micrococcus (Staphylococcus) (ac/-POCST) with the patients showing complications during treatment is strong presumptive evidence that it was the organism responsible for them. Two difficulties call for explanation: (1) the failure to isolate it from some of the patients showing complications, and (2) its presence in many patients in the dysentery wards who did not show complications. The first difficulty may be an expression of the selection that inevitably operates when single colonies are picked from the culture plate at primary isolation. The second difficulty is more theoretical than actual, for in communicable disease the carrier rate is often higher than the incidence of illness. The presence of the organism in three nurses, all of whom had worked in the dysentery wards but had not received antibiotics, is evidence that at some stage cross infection had taken place. The control of staphylococcic cross infection may depend not on the search for staphylococcic carriers in general but on the recognition of carriers of defined types of proved pathogenicity, of which ac/-POCST seems to be one.

Leukemia in Survivors of Atomic Bombing. W. C. Moloney. New England J. Med. 253:88-90 (July 21) 1955 [Boston].

Of 92 verified cases of leukemia occurring up to Jan. 1, 1954, in survivors of the atomic bombing in Hiroshima and Nagasaki, 75 were reported on previously, while observations on 17 subsequently observed new cases of irradiation-induced leukemia prompted the author's present report on the various aspects of this disease. Of the 17 patients whose cases were studied in 1953, the disease started in 1 in 1951, in 8 in 1952, and in 8 in 1953. It seems safe to conclude that, although the peak occurrence of leukemia was probably reached in 1951, it will continue to appear but its rate of occurrence in survivors of the atomic bombing is definitely declining. Of the 92 survivors with confirmed irradiation-induced leukemia, 52 had acute or subacute leukemia, and, of the 40 with chronic disease, 39 had the myelogenous type, and only one the chronic lymphatic variety. Data indicated that in man the leukemogenic dose of a single exposure to atomic radiation is high. Biological evidence in survivors indicated that in contrast to previous statements, according to which the dose of gamma irradiation was 25 r at 2,000 m. from the hypocenter and the neutron flux only extended to 800 m., symptoms and signs of severe irradiation sickness were present in survivors out to 2,500 m. from the hypocenter, and lens opacities caused by irradiation were noted at 1,700 m. Since irradiation cataracts were undoubtedly caused by neutrons, the neutron flux probably extended much farther and was more intensive than estimated physically. The implications are that neutrons as well as gamma irradiation were probably involved in the leukemogenesis. Cytological features in the preclinical stage of chronic granulocytic leukemia included the early appearance of a small percentage of myelocytes and metamyelocytes and a very significant basophilocytosis. Separated leukocytes showed extremely low alkaline phosphatase activity, even in the earliest stages of the disease.

SURGERY

The Physiologic and Pathologic Evaluation of the Implantation of the Internal Mammary Artery Into the Left Ventricular Myocardium for the Treatment of Coronary Artery Disease. A. A. Bakst, R. Maniglia, A. Adam and C. P. Bailey. Surgery 38:349-362 (Aug.) 1955 [St. Louis].

The Vineberg operation, in which the internal mammary artery is implanted within the thickness of the left ventricular myocardium, has been said to result in the development of a collateral circulation between the implanted artery and the left anterior descending coronary artery. Quantitation of the retrograde blood flow from the peripheral segment of a ligated and transected coronary artery, which has proved to be an effective method of evaluating changes or augmentation produced in the intercoronary anastomoses, has been used in studying the effect of this operation in dogs. The animals used in these experiments were permitted to lead a normal kennel existence for six months after the operation and before the physiological studies were made; in general, the mortality from the initial procedure was negligible, the operative technique was simple, and the incidence of thrombosis of the internal mammary implant was low (8.9%). The physiological studies showed that the retrograde blood flow from the distal cut end of the ligated left anterior descending coronary artery averaged 2.3 cc. per minute, representing a normal amount of the intercoronary arterial anastomotic flow. Separate clamping, first of the internal mammary implant and later of the left circumflex artery at its origin, proved that this intercoronary anastomotic flow arose almost entirely from the nonoccluded circumflex artery; no increase or change in the flow could be attributed to the implanted internal mammary artery. These physiological results can be explained by the fact that on pathological examination the lumina of the implanted vessels were 95% obliterated by severe intimal proliferation. The vessels were surrounded by fibrous tissue and presented a picture that suggested that they had been walled off by the ventricular myocardium as though they were foreign bodies. The possibility that these findings may be altered by rendering the myocardium ischemic and so creating a need for revascularization is to be investigated in a new series of experiments.

Arterial Hypertension: Comparative Study of Patients Treated by Two Surgical Procedures. G.-E. Cartier. Union méd. Canada 84:887-910 (Aug.) 1955 (In French) [Montreal, Canada].

Fifty patients with arterial hypertension were treated surgically: 18 by dorsolumbar sympathectomy and splanchnicectomy (Smithwick's operation) and 32 by this method plus subtotal adrenalectomy. The amount of adrenal tissue resected varied from 50 to 90%, increasing as the series progressed. The effect of both operations on the following subjective signs: headache, fatigue, and work capacity were equal; they were very good in 91% of the first two symptoms and in 77% of the last. Lesions of the fundus of the eye were equally benefited in both groups of patients, despite the fact that they were more numerous and twice as severe in the patients in whom adrenalectomy was practiced. Electrocardiographic signs were ameliorated in both groups. There was not always a correlation between improvement or the lack of it in one or several of these signs and the effects of surgical intervention on the arterial pressure. Women responded better to the operations than men, but the sex difference was less pronounced among the patients who had the combined procedure. Excellent results were obtained in between 50 and 58% of all the patients and good or excellent results in from 62 to 70%. Greater drops in pressure were obtained in the patients with adrenalectomy. The levels of systolic and diastolic pressure before intervention did not determine the results. The amount of time that has elapsed since operation did not affect the results in patients given combined treatment, whereas it was an influencing factor in patients with sympathectomy alone. The author is convinced that the addition of adrenalectomy accounted for the better results achieved in that group of patients and not some other factor. There also seems to be a parallel between the pressure drop and the amount of functioning adrenal tissue left in the patient. The results of the Thorn test suggested that there was no compensatory adrenal hyperfunction after removal of part of the adrenal glands. The proper use of surgical interventions of the type described is in the treatment of patients with arterial hypertension whose disease has not been arrested by adequate medical therapy pursued for a reasonable period of time.

Recovery with Cardiac Massage After Cardiac Arrest Lasting Thirty-Seven Minutes. L. Eckmann and M. Allgöwer. Arch. klin. Chir. **280**:451-454 (No. 5) 1955 (In German) [Berlin, Germany].

The patient, a woman aged 38, was to be subjected to a brain operation. Anesthesia was induced by means of pentobarbital and a muscle relaxant. During endotracheal intubation, which followed spraying of the pharynx with a surface anesthetic, the patient became pulseless, the pupillary reflexes were not elicitable, blood pressure could not be measured, and the carotid pulse could not be felt. Thoracotomy was done at once through the fourth intercostal space, and, within three minutes after the cardiac arrest, cardiac massage was begun. Pure oxygen was given through the endotracheal tube. Intracardiac injection of first 0.25, then 0.50, and finally 1 mg. of epinephrine had no effect. Cardiac massage was continued for 37 minutes, and then spontaneous contractions set in. At first there were a few systoles, in which apparently only the ventricles participated, but then the heart action was transformed into a normal, sinus-regulated type, which was rhythmical. During cardiac massage spontaneous breathing returned before spontaneous heart action had been restored. No hypoxemic symptoms recurred during the further course, and an electrocardiogram made 20 hours later showed a sinus rhythm frequency of about 100 per minute but otherwise essentially normal conditions. Four weeks later electrocardiography revealed a moderate sinus rhythm and signs of the action of digitalis. The former status was restored after cardiac massage, and there were no disturbances in respiration, digestion, renal function, or speech.

Chlorpromazine as an Aid to Cooling in a Thyroid Crisis. A. R. Hunter. Lancet **2**:173-174 (July 23) 1955 [London, England].

Subtotal thyroidectomy in a hyperthyroid patient was followed by acute hyperthyroidism. The temperature rose steadily to 105 F (40.6 C), and the pulse rate to 200. Thereafter the pulse became uncountable, and auricular fibrillation developed. Despite treatment with digoxin and intravenous iodine and with sedation with phenobarbital, the patient's condition deteriorated steadily. When, 24 hours after operation, it had become apparent that a thyroid crisis was developing, the patient was given a test dose of chlorpromazine, 25 mg. orally, followed by 50 mg. four hours later. A further 50 mg. was given every 8 hours during the subsequent 72 hours. The blankets were at once removed from the bed. When, 30 hours after operation, her condition had deteriorated despite gentle cooling, 100 mg. of meperidine (pethidine) was injected intravenously over 10 minutes. Ice bags were placed in axillae and groins, and on the abdomen, and the patient was placed in an oxygen tent. The nursing staff was instructed to take the oral temperature half-hourly and to remove the ice if this fell below 98 F (36.7 C). Two hours after the initial application of ice the patient became restless, presumably because of discomfort; an additional 50 mg. of meperidine was given intramuscularly, and this dose was repeated every 4 hours for the next 48 hours. Her temperature fell steadily after the application of ice, and next morning her pulse rate was 136, respiratory rate 20, and the temperature 98 F (36.7 C). The ice bags were removed. Five hours later, when the temperature had again reached 101 F (38.3 C) and the pulse rate 160, they were reapplied for a further two hours, after which her temperature again fell to 98.6 F (37 C). Subsequently her condition improved steadily; but administration of meperidine and chlorpromazine was continued so that cooling could be begun without difficulty should the need arise. The patient recovered. The essential problem in thyroid crisis is to reduce the excessive metabolic rate. In the past there has been no completely effective method of doing this, and the condition has carried a very considerable mortality. In the present case the combination of cooling with prevention of shivering by administration of chlorpromazine and meperidine seemed to be responsible for the patient's recovery.

Traumatic Rupture of the Esophagus (With a Report of 13 Cases). J. W. Overstreet and A. Ochsner. J. Thoracic Surg. **30**:164-180 (Aug.) 1955 [St. Louis].

Traumatic rupture of the esophagus is a catastrophic accident that is increasing in frequency and one that is associated with prohibitive mortality and morbidity unless early diagnosis, vigorous resuscitation, and definitive surgical therapy are carried out. Of 13 patients with traumatic perforation of the esophagus treated by the authors from July, 1950, to June, 1953, eight cases were due to diagnostic or therapeutic endoscopy or bougienage, one occurred in the pyriform fossa during attempted passage of a Levin tube with the patient under endotracheal anesthesia, and four were due to penetrating injuries of the neck. The patients were subjected to operation as soon as possible after the diagnosis was made and resuscitative and supportive therapy had been started. Ten of the patients received primary repair with excellent results except for small temporary fistulas that developed in three. The duration of perforation prior to repair in those developing fistulas was 44 hours, 24 hours, and 28 hours, respectively. Mediastinotomy and drainage were done in two patients, the first of whom underwent posterior mediastinotomy and intrathoracic underwater-seal drainage for massive infected pleural effusion and tension pneumothorax 28 hours after perforation; she died on the eighth postoperative day. The second patient underwent cervical drainage of a high mediastinal abscess 32 hours after perforation during biopsy of a high thoracic esophageal carcinoma. The ages of the patients ranged from 16 to 88 years. The time interval from perforation to surgery varied as extensively as did the ages, the intervals ranging from 1½ hours to 44 hours. Of the eight endoscopic perforations, five occurred immediately below the cricopharyngeus sphincter on the posterior esophageal wall, one occurred through a stricture immediately above the esophageal hiatus, and in the two patients in whom drainage only was done the site was in the cervical or upper thoracic esophagus, but the opening was not visualized. All four of the penetrating esophageal injuries occurred in the cervical segment. The authors conclude that their experience is about the same as that of others, in that prompt diagnosis, rapid resuscitation, surgical exploration with débridement of contaminated fascial planes, definitive repair of the esophageal defect, and vigorous postoperative supportive therapy are followed in a large percentage of cases by a rapid and relatively uncomplicated recovery from this previously highly fatal accident.

The Relation Between Sideropenia and Anemia and the Occurrence of Postcibal Symptoms Following Partial Gastrectomy for Peptic Ulcer. S. Wallensten. Surgery 38:289-297 (Aug.) 1955 [St. Louis].

The symptoms of fatigue, pallor, nausea, palpitation of the heart, epigastric pain, and occasionally diarrhea as well, occurring a short time after meals in patients subjected to partial gastrectomy, sometimes referred to as the dumping syndrome, have also been variously designated as postprandial and postcoenal. The term postcibal (i. e., post cibum, after meals, after eating), applied to these symptoms by Meurling, among others, seems on the whole to be comprehensive enough to cover the rest. The incidence of these symptoms, which are sometimes so severe that they endanger the good results of gastrectomy for peptic ulcer, is comparatively high. Some authorities believe that they originate in the small intestine, as a result of such disturbances as jejunal distention, irritation of the small intestine and increased motility therein, hyperemia in the vicinity of the splanchnic nerves, allergy, and the like; others attribute them to conditions such as distention, gastritis, achylia, and the like in the gastric remnant; and still others think they originate elsewhere. Hypoglycemia, reduced serum potassium, and even anemia or sideropenia are among the causes suggested by those in the last group. Critical evaluation of these possibilities leads to the conclusion that, while a number of factors may contribute to the occurrence of postcibal symptoms, they are in all probability usually caused by the response of the small intestine to a sufficiently intense, nonspecific irritation. Epithelial changes in the nails and buccal mucosa have been shown to accompany sideropenia and, if similar changes exist in the intestinal mucosa, the resulting mucosal sensitivity might conceivably play a significant part in the response of the intestine to irritation. Postcibal symptoms have, in fact, been found to occur more frequently in patients with sideropenia than in those with normal hemoglobin and serum iron values. Investigation of 587 patients who underwent partial gastrectomy for peptic ulcer during the period between 1932 and the end of 1949 confirmed the author's previous findings and showed an appreciably higher incidence of postcibal symptoms in patients with definite anemia and sideropenia than in those with normal or slightly reduced hemoglobin content. An increase in the degree of iron deficiency was paralleled by a rising incidence of postcibal symptoms. Iron therapy, administered intravenously because of the poor capacity for absorption often found in patients who have undergone gastrectomy, was given to 21 patients with sideropenia and postcibal symptoms. All but one were considerably improved, and in 14 the symptoms disappeared completely. Improvement was also obtained in two of six patients with postcibal symptoms who had normal serum iron values, but the other four were unimproved. No serious side-effects were noted. Some patients reported a general sense of bodily warmth as well as heat and flushing of the face, but these effects could be avoided by giving the injection more slowly. These findings show that there is every reason to use well planned and executed iron therapy in an attempt to improve the condition of patients with postcibal symptoms accompanied by anemia or sideropenia.

Indications and Results of Surgical Treatment of Recurrences of Malignant Tumors. M. Schwaiger and K. H. Müller. Arch. klin. Chir. 280:536-551 (No. 5) 1955 (In German) [Berlin, Germany].

The authors found follow-up possible in 125 of 153 patients who were operated on for recurrence of malignant tumors at the Heidelberg University Hospital during the decade from 1943 to 1953. One operation for relapse was performed in about half of these patients, and the others underwent from two to five operations for relapse, a total of 216 operations. The fact that a total of 37,000 operations were performed at the same hospital during the period in question indicates that operations for relapses of malignant tumors were comparatively rare. The patients included 35 with mammary carcinoma, in whom 53 operations were carried out for recurrences. The number of operations performed for recurrent lesions in other sites were as follows: 17 in 17 patients with gastric carcinoma recurrences; 23 in 17 patients with colon-rectal carcinoma; 33 in 13 patients with facial carcinoma; 13 in 7 patients with other squamous cell carcinomas; and 12 in 6 patients with miscellaneous tumors. The most favorable results were obtained in relapses of mammary carcinoma and in carcinoma of the lips and cheeks. Although 50% of these patients died within two years after the operation for relapse, 25% experienced remissions of several years' duration and another 25% obtained permanent cures. The fact that among the definitely cured there were some with extensive recurrences that required resections of the thoracic wall indicates that operation may prove effective even in rather advanced processes. In carcinoma in the region of the lip and cheek operation for relapse was followed in one-third of the patients each by cure, remission, or death. In relapses of sarcoma the results were favorable only in the rather mature forms (three fatalities compared with seven cures). In the undifferentiated forms of sarcoma the surgical treatment could not arrest the unfavorable course. In carcinoma of the gastrointestinal tract attempts at radical removal in relapses were ineffective. Search for the factors common to the relapses that responded favorably to operation revealed that they were relapses involving the skin, the superficial soft parts or the scar tissue. Judging by form, localization, and growth, these recurrences were caused by incomplete removal or by surgical implantation of tumor tissue. The authors feel that, in the favorable forms, surgical removal should always be tried. The fact that of those who were cured about 50% had not one but several relapses indicates that in case of repeated recurrences surgical removal should be attempted each time. With regard to the surgical technique, the authors regard it as important that, in order to avoid a new tumor implantation, it should be carried out under general anesthesia; that, if possible, excision should be done with the electric knife; and that removal should extend far into the healthy tissue. Factors likely to cause mechanical, chemical, or physical damage should be kept away from the region of the operation, in order to avoid further relapses.

Spondylolisthesis: A Critical Review of a Consecutive Series of Cases Treated by Arthrodesis. D. M. Bosworth, J. W. Fielding, L. Demarest and M. Bonaquist. J. Bone & Joint Surg. 37A:767-786 (July) 1955 [Boston].

The statistical material presented in this paper is concerned with 115 patients who were treated by spine fusion for spondylolisthesis in the lumbar spine. The report of the surgical results is concerned with 75 patients operated on by a single technique. The forward slip of the vertebral body and the defect in the pars interarticularis in spondylolisthesis represent only a part of the anatomic alteration present in such cases. The arch of the displaced segment tends to provide support for the spine and to prevent further slippage. Removal of the arch is advisable but only if it is replaced by a bone graft to give adequate support. Pain in spondylolisthesis is the result of more than one causal factor. The authors believe it to be due to impingement of malaligned bony elements and to abnormal stress on fibrous or ligamentous structures. Extradural pressure from prolapse of an intervertebral disk occurs occasionally. Pressure from hypertrophied fibrocartilaginous tissue in the pars interarticularis defect was not noted by the authors. Disk degeneration itself cannot cause pain. Earlier the authors had used various surgical techniques, including the Hibbs-type fusion with and without reinforcing iliac strips and tibial H-grafts with and without additional iliac strips. Since 1944 the routine procedure has been to implant an autogenous, cortical iliac graft of the distraction type, supplemented by strips of cancellous iliac bone placed beneath it. Since 1941 the authors, as a rule, removed the fifth lumbar laminar arch. Since 1942 the bone grafts have been placed in contact with the previously denuded stumps of the pedicles of the displaced segment. The arch was removed in 64 instances and left in situ in 11. Of the 75 fusions 66 were from the fourth lumbar vertebra to the sacrum, 6 were from the third lumbar vertebra to the sacrum, 2 from the third to the fifth lumbar vertebra, and one was from the second to the fourth lumbar vertebra. There were no operative deaths. Sixty-five of 73 patients who could be evaluated were asymptomatic. Of the 66 with solid fusion, 62 were free from symptoms; of the 7 with failure of fusion only 3 were asymptomatic.

Clinical Evaluation of 750 Patients with Colon Cancer: Diagnostic Survey and Follow-Up Covering a Fifteen-Year Period. T. A. Shallow, F. B. Wagner Jr. and R. E. Colcher. Ann. Surg. **142**:164-175 (Aug.) 1955 [Philadelphia].

The peak incidence (60.7%) of cancer of the colon in a series of 750 patients occurred in the sixth and seventh decades, with slight predominance in the male (56%). The age extremes were 16 to 92 years. Change in bowel habit is probably one of the earliest symptoms of colonic cancer, 69.3% in this series. Weight loss and anemia were commoner in right colon lesions and obstructive phenomena commoner in the left colon. About 50% of all the cancers of the colon, rectum, and anus were palpable on digital rectal examination. Seventy-seven per cent of the lesions occurred in the lower sigmoid, rectosigmoid, and rectum; three-fourths of these were palpable rectally. Polyps of the colon were demonstrated by barium enema or sigmoidoscopic examination in 16.2% of the patients and another primary colonic cancer in 4%. This emphasizes the probable role of polyps as precursors of colonic cancer. The most significant cause for delay in diagnosis was the assumption by the patient or physician that rectal bleeding was due to hemorrhoids. Change in bowel habit frequently caused no immediate concern. Cardiovascular disease was the commonest surgical handicap encountered; urinary tract invasion or compression justified routine preoperative intravenous urography and sometimes bilateral ureteral catheterization. Many of the patients (28.3%) had late lesions. Thus, 14.8% required decompressive surgery for complete colonic obstruction, an additional 11.6% had palliative surgery, and 1.9% were prohibitive surgical risks. With adequate bowel preparation and the use of the Miller Abbott tube, it is usually safe to perform wide resection with open primary anastomosis of left colon lesions. When optimal conditions are lacking, such as in marked edema, disparity in size of the lumens, or questionable blood supply to either loop, it is safer to perform stage resection with later restoration of continuity. For cancer of the lower sigmoid, rectosigmoid, rectum, and anus, the authors perform abdominoperineal resection with perineal excision including the levator ani muscles. Resection with primary anastomosis is done only when an adequate segment of colon distal to the lesion can be removed and anastomosis carried out above the peritoneal reflection. In anal cancer, abdominoperineal resection was supplemented by bilateral radical femoroiliac lymph node dissection. The resectability rate in this series rose from 82.5% in the first of the three five year periods covered by the study to 89.3% during the last five years. This is among the highest rates reported in the literature. Urinary tract infection accounted for the highest morbidity and renal failure for the highest mortality. Complete five year follow-up study was obtained in 93.6% of the eligible patients. The over-all five year survival was 33.1%, and 94% of these patients were still clinically free of cancer. There was a significant drop in recurrence rate and metastases after the third year. The rectosigmoidal and rectal group of cancer patients showed a higher survival rate than those with right or left colon lesions. Among those patients who had localized lesions without evidence of spread, the five year survival rate in the rectosigmoidal and rectal group was 70.3%. The survival rate was higher in the patients with lesions histologically graded as low or intermediate.

NEUROLOGY & PSYCHIATRY

Presenile Cerebellar Ataxia in Chronic Alcoholics. S. A. Skillicorn. Neurology **5**:527-534 (Aug.) 1955 [Minneapolis].

Six patients with a clinical picture of cerebellar atrophy, characterized by slowly progressive ataxia beginning in middle age, were admitted within a period of six months to the U. S. Naval Hospital, San Diego, Calif. They are presented with a twofold purpose: (1) to emphasize that this particular syndrome should be considered in any case of progressive cerebellar dysfunction with onset in the presenium, especially if there is a history of alcoholism, and (2) to offer the concept that the cerebellar syndrome may be but part of a diffuse degenerative process of the entire brain. The age at onset varied from 39 to 55 years. Duration of the illness was one year for three men, 2 years for one, 5 years for one, and 15 years for the other. All patients admitted to prolonged overindulgence in alcoholic beverages. Initially, three of the patients showed a mild to moderate peripheral neuropathy that disappeared following vitamin therapy and adequate diet. While a satisfactory explanation has never been given for the predominance of cerebellar dysfunction in the lower extremities in this syndrome, it is suggested that the evolutional transition from four-legged to upright two-legged animal ambulation possibly has resulted in redistribution of cerebellar function, that is, adaptation, with functional activity directed toward maintenance of synergy more in the lower than in the upper extremities, and with consequent prevalence of leg incoordination in cases of diffuse degeneration of the cerebellum. The absence of nystagmus in the reported patients probably indicates that the vestibular nuclei and their connections are not involved by the degenerative process, at least not of sufficient extent to produce clinical manifestations. Pneumoencephalographic and psychological studies suggested the presence of diffuse degenerative disease of the cerebrum, in addition to cerebellar atrophy.

Treatment of Some Neuropsychic Syndromes of Old Age with Chlorpromazine. G. Mars and M. Morpurgo. Gior. gerontol. **3**:226-232 (May) 1955 (In Italian) [Florence, Italy].

Chlorpromazine (Largactil) was used in the treatment of 53 patients in the 72 to 86 age group, 4 of whom had involution melancholia, 30 senile psychoses of demential, delirious, and manic-depressive type, 2 epileptic syndrome, 12 Parkinson's syndrome, and 5 subacute alcoholism. The drug was given at first intramuscularly, then orally, in doses of from 50 to 200 mg. daily according to the severity of the condition. The therapy was continued for from 1 to more than 90 days; it was tolerated well and never caused marked side-effects. The most noteworthy effect was the drug's influence on the humor of the patients who, sad and depressed before the therapy, became euphoric and optimistic. The therapy had also a sedative and hypnotic effect. Results were good in 38 patients, in 16 of whom they were definitive. The best results, as to the sedative, hypnotic, or euphoric effect, were seen in the patients with psychosis of delirious type, involution melancholia, subacute alcoholism, and epileptic syndrome. The results were poor and transitory in those with dementia and manic-depressive psychosis, and the condition of the patients with Parkinson's syndrome was not influenced. The serum protein findings were unchanged during and after the therapy, suggesting that the hepatic function was not altered. Some patients gained appetite and body weight. Careful clinical and laboratory studies of the cardiovascular system, liver, and hemopoietic organs and their functions in these patients indicated that old age is not a contraindication to the use of chlorpromazine.

Relapses in Adults with Tuberculous Meningitis: Incidence and Prognosis in Relation to Form of Therapy. H. Sudhof and A. Steinhoff. Deutsche med. Wchnschr. **80**:1085-1086 (July 22) 1955 (In German) [Stuttgart, Germany].

According to the principles established by the World Health Organization, only those patients with tuberculous meningitis can be regarded as cured in whom at least 12 months have elapsed since the onset of the antituberculous therapy. It was observed soon after the introduction of streptomycin that relapses were frequent before, but not after, this period. The 100 adult patients with tuberculous meningitis discussed in this report had all been observed for more than a year. Relapse was mentioned in 21 of them. Eleven of these, however, could not be regarded as true relapses, because in these patients the relapse occurred during the period of treatment, before all meningitic symptoms had subsided. The authors present an illustrative case history, which demonstrates that the patient in question did not have true relapse but that the course of the tuberculous meningitis was characterized by successive bouts or exacerbations. The patients who had this form of tuberculous meningitis had a poor prognosis, in that 8 of the 11 died. Autopsies made in five of the eight fatal cases revealed a rather uniform pathological picture. In addition to old healed tubercles, the meninges also showed new lesions, and in two of the cases lesions typical of all the stages of tuberculous meningitis were present. This suggests that from the beginning the treatment had been insufficient to control the disease process. Cases of that type are no longer observed since isoniazid therapy has been introduced. Ten of the 21 were true cases of relapse. In 6 of these 10 the tuberculous meningitis had been treated with streptomycin only, in one with streptomycin and aminosalicylic acid, and in 3 with streptomycin, aminosalicylic acid, and isoniazid. In 3 of the 10 patients the relapse occurred because the tuberculous meningitis had not been treated adequately. Treatment was continued for only six weeks—in two, because of rapid improvement, and in one, because a psychosis had developed. Observations on these three patients emphasize the need of continuing treatment with the three drugs over long periods. Since the authors have done this, they have not observed a single true relapse. Serial examinations of the cerebrospinal fluid did not provide an early indication of the occurrence of relapses.

Treatment of Tuberculous Meningitis with Tuberculostatic Drugs in Combination with Cortisone. F. Michel and W. Pulver. Schweiz. med. Wchnschr. **85**:717-721 (July 23) 1955 (In German) [Basel, Switzerland].

It has been observed that, in from 10 to 15% of patients with tuberculous meningitis, an arachnoiditis develops, which interferes with the circulation of the cerebrospinal fluid. Since the administration of cortisone has been known to prevent or counteract this arachnoiditis, the authors used cortisone in addition to tuberculostatic drugs in four children and in four adults with tuberculous meningitis. The antituberculous drugs used were streptomycin, isoniazid, and, in some of the patients, aminosalicylic acid. The streptomycin was given only intramuscularly. The isoniazid was given orally, in doses of 5 to 10 mg. per kilogram of body weight, and by intralumbar injection, 20 to 30 mg. per injection, to the first five patients, whereas the other three patients received this drug by oral administration only. Cortisone was given at first in doses of 100 or 200 mg. per day; later this dose was gradually reduced by 25 to 50 mg. and then was discontinued after from three to five weeks. The drug therapy was continued for from four to seven months, and the intralumbar administration for from two to five months. In five of the patients from 10 to 15 months have elapsed since the start of treatment, in two patients 7 months, and the eighth patient has been under treatment for 3½ months. Since the middle of May, 1955, all patients have been free from symptoms. All neurological symptoms subsided completely. The addition of cortisone to the tuberculostatic drugs did not result in the activation of healed tuberculous foci; on the contrary, active pulmonary and hilus lesions showed improvement or clinical cure. Mild adrenal cortical hyperfunction (Cushing's syndrome) appeared in three of the children but disappeared when treatment with cortisone was discontinued. The main effect of the cortisone seems to be that it prevents neurological damage and spinal block with its sequels.

Experiences in the Psychiatric Treatment of Ulcerative Colitis. R. G. Head. J. Louisiana M. Soc. **107**:321-324 (Aug.) 1955 [New Orleans].

The importance of psychological factors in the genesis and course of ulcerative colitis has been recognized by many observers. The author became interested in the psychiatric management of patients with ulcerative colitis when he was consulted about several who had, in addition to their ulcerative colitis, clear-cut suicidal depressive symptoms. The author treated several of them with a course of electric shock therapy, as one would treat any patient with such a severe depression, and he has now managed six cases jointly with an internist and a surgeon. The first patient was a 45-year-old woman who had had from 10 to 20 bloody stools daily for several months, with resulting weight loss and malnutrition. In addition, she was intensely depressed, was anorectic, and slept little. She received a course of eight electric shock treatments with cessation of the diarrhea after the second treatment, followed by constipation. The depression lifted gradually, and the end-result was a severely hypochondriacal person without depression or ulcerative colitis. The response of four of the others was similar and with a better final result. In each of these the diarrhea and depression stopped quickly. The sixth patient received only one electric shock treatment, additional ones being refused. Later a colectomy was performed in this patient. The five patients reacted with much more than the usual memory loss; most had a total amnesia from the hospitalization. After the first treatment, they reacted with extreme suspicion and distrust and directed various paranoid accusations against the doctor. All of these symptoms subsided over a period of weeks. It seemed as if a temporary paranoid psychosis had taken the place of the symptoms of ulcerative colitis. Five of these six patients have been followed for 18 months to two years, and none have relapsed. Perhaps, in acute cases, electric shock therapy may shorten the course of the illness and may even be of lifesaving value.

GYNECOLOGY & OBSTETRICS

Acquired Fibrinopenia in Pregnancy. A. P. Barry, F. Geoghegan and S. M. Shea. Brit. M. J. **2**:287-290 (July 30) 1955 [London, England].

It is generally agreed that an acquired fibrinopenia is responsible for the coagulation defect found in certain obstetric emergencies. This defect is most commonly seen in accidental hemorrhage, but it occurs also in association with amniotic fluid embolism, where it may lead to fatal postpartum hemorrhage. The authors as well as others encountered it after the delivery of a macerated stillborn fetus retained in utero for a considerable time in a rhesus-immunized mother, and very recently they observed it after a missed abortion (eight weeks). The authors speculate on the possibility that fibrinopenia may be responsible for the apparently disproportionately severe hemorrhage sometimes encountered in evacuating the uterus in cases of missed abortion. In any intractable hemorrhage complicating pregnancy, repeated determination of the coagulation time by the Lee and White method should be performed. The authors have been interested in the rapid fibrinogen assay method devised by Schneider in 1952, and they particularly draw attention to a simple colorimetric method for the estimation of plasma fibrinogen described by Shea in 1954. These two methods will detect degrees of fibrinogen deficiency not recognizable by the Lee and White technique. Both are well within the compass of the small clinical laboratory. The authors describe these two methods and present the histories of six patients who were selected in order to demonstrate the various circumstances in which intractable hemorrhage due to a defect of coagulation may be encountered in obstetrics. Patients who show a Schneider titer of 1 in 100 or less (plasma fibrinogen probably below 120 mg.) should be regarded as potential victims of a hemorrhagic diathesis. If hemorrhage occurs it cannot be checked without restoring the blood fibrinogen. Even if there is no manifest hemorrhage, disastrous bleeding may be provoked by active intervention. Since stored blood for transfusion will have a fibrinogen content of 200 mg. per 100 ml. or less, it may not be possible to raise the blood fibrinogen to a safe level by transfusion of whole blood. If pure fibrinogen is not available, a rapid restoration of clotting power may be achieved by the intravenous injection of triple-strength or quadruple-strength plasma (1 pt. [570 ml.] of quadruple-strength plasma yields about 4.4 gm. of fibrinogen).

The Use of Plastic Prosthesis in Breast Plastic and Other Soft Tissue Surgery. W. J. Pangman II and R. M. Wallace. West. J. Surg. **63:**503-512 (Aug.) 1955 [Portland, Ore.].

This report is concerned with the use of Ivalon, an inert plastic sponge material, a polymer formed by the action of formaldehyde on polyvinyl alcohol. The authors mention Oppenheimer's report on the carcinogenic action of other plastics in rats, but, in reviewing the experimental and clinical use of Ivalon by other investigators, they point out that Ivalon sponge has been in situ in some animals for up to five years, and yet no malignancies have developed. The authors use Ivalon sponge in hernia repair, in building up tissues about the face, such as receding chins and nasal deformities, and in the restoration of the contour of the female breast following mastectomy and in the build-up of small breasts. When Ivalon sponge was first used for breast repair, some patients showed excessive drainage, and over 10% of the implants had to be removed because of this; also there was considerable shrinkage of the sponge. The authors overcame most of the shortcomings of the plain sponge by devising a compound prosthesis, in which the inner portion of the sponge is cut away leaving a shell of Ivalon about 5 to 8 mm. thick. The segment of the sponge removed is sealed airtight in a polyethylene sac and reinserted into the shell, like the inner tube in a tire. This prosthesis has the following advantages: (1) the outer shell affords an inert framework that becomes fixed to the surrounding tissue; (2) the inner polyethylene sac prevents further ingrowth of fibrous tissue and prevents collapse of the prosthesis; and (3) the inner sac reduces the accumulation of fluid throughout the sponge, reducing its weight and the danger of drainage. This new type of prosthesis has been used over the last three years in over 400 breast operations with favorable results. A new method of sterilization for the Ivalon prosthesis uses a vacuum, followed by formaldehyde gas for several hours, then vacuum again. This method has largely done away with infections. The authors warn against the promiscuous use of prosthesis to build up small breasts and advise that it never be used in patients with a family history of breast cancer. They also urge that the work be done only by those well qualified in the surgery, anatomy, and pathology of the breast.

Treatment of Dysmenorrhea with a New Analgesic-Sedative. W. G. Caldwell. Rocky Mountain M. J. **52:**701-703 (Aug.) 1955 [Denver].

This report is concerned with the medical management of dysmenorrhea with Fiorinal, a new analgesic and sedative, which contains Sandoptal (isobutylallylbarbituric acid), caffeine, acetylsalicylic acid, and acetophenetidin. The author used this drug in 47 women, whose ages ranged from 18 to 42 years. Except for nine patients who had retroversion of the uterus, no gross pelvic lesions existed in these women. The menstrual cycles were regular. Most of the patients complained of passing clots the first day of flow but not to a degree that could be considered excessive. Forty of the 47 women complained of gradually increasing discomfort commencing two days before and reaching a climax the first day of menstrual flow. The remaining seven complained of gradually increasing discomfort starting five to six days prior to onset and then reaching a peak on the first day of flow. All complained of lower abdominal distention from the sixth premenstrual day until the onset. Restriction of salt intake helped all 47 patients but did not completely relieve pain and discomfort. Thirty-five of the 47 patients had received previous therapy, none with any success. An initial dose of two tablets of Fiorinal, taken at the first sign of cramps, and followed routinely in three hours by one tablet, proved effective in 22 patients. Twenty-five patients required an increased or additional dosage of Fiorinal. Thirty-five of 47 showed excellent response, 18 improving to the point where they no longer required regular monthly medication. No side-effects were noted in any of the 47 cases.

Metastases of Carcinoma of Body of Uterus to Pelvic Lymph Nodes. H. Lefèvre. Ugesk. læger **117:**712-718 (June 2) 1955 (In Danish) [Copenhagen, Denmark].

Clinical investigations based on dissection of the pelvic lymph nodes during operation for carcinoma of the body of the uterus show that metastases to the pelvic lymph nodes occur to a greater extent and at an earlier stage than was formerly believed. They were found in 5 out of 40 patients operated on for carcinoma of the body of the uterus. These results together with results reported from five other sources reveal that out of 212 patients with carcinoma of the body of the uterus in whom dissection of the pelvic nodes was performed, 40, or 19%, had metastases to the pelvic lymph nodes. The tendency of carcinoma of the body of the uterus to metastasize to the pelvis should lead to radicalization of the operative treatment only in suitable cases, in which an extended or modified Wertheim operation would reasonably be undertaken. For patients who cannot tolerate so extensive an intervention, bilateral removal of the lymph nodes in foramina obturatoria and along the large vessels may be recommended.

Triethylene Melamine in the Management of Far Advanced Ovarian Cancer. M. P. Sykes, R. W. Rundles, V. K. Pierce and D. A. Karnofsky. Surg., Gynec. & Obst. **101:**133-140 (Aug.) 1955 [Chicago].

Twenty-six patients with carcinoma of the ovary, who had previously received surgical treatment and usually also x-ray therapy and who then showed recurrent and progressive disease, were treated with triethylene melamine (TEM). The drug was given by the intravenous and oral routes. The intravenous daily dosage was usually 3 to 4 doses of 0.04 mg. per kilogram of body weight (2 to 3 mg.). The injection was usually given into the tubing of an intravenous infusion set. Nausea and vomiting rarely occurred at the recommended dosage, although the patients occasionally complained of anorexia. The drug was available for oral use in 5 mg. scored tablets. The usual dose was 2.5 to 5 mg. per day for one or two days. The tablet was usually taken an hour before breakfast, with water. About half of the patients complained of anorexia, mild nausea, and dizziness at some time during treatment. The average oral dose was 20 to 40 mg. during the first month. The dosage was estimated at intervals of one or two weeks on the basis of the patient's hematological and clinical response. If satisfactory improvement followed, the patient was put on a maintenance dose, while being kept under hematological control. Fourteen of the 26 patients obtained some symptomatic improvement, and 8 of this group showed objective evidence of tumor regression. Improvement usually persisted for from one to three months. One patient showed benefit for a period of 11 months, and another has shown no evidence of recurrent disease for four years. The latter case may represent a spontaneous remission. On the basis of these responses, an adequate trial of triethylene melamine or of a related compound is indicated in patients with nonresectable or recurrent ovarian cancer. Triethylene melamine may precede, follow, or be administered concurrently with, x-ray therapy.

Carcinoma of Breast During Pregnancy. J. R. Firpo. Rev. Asoc. méd. argent. **69:**84-86 (April 15-30) 1955 (In Spanish) [Buenos Aires, Argentina].

Two cases of cancer of the breast in pregnant women are reported. The first patient had a small nodule that appeared several years before pregnancy, developed slowly, and stopped growing for a year prior to pregnancy. After the fifth month of pregnancy the nodule rapidly grew into a tumor that became ulcerated. Biopsy showed carcinoma. The patient refused treatment. She returned to the hospital at full term of pregnancy, in cachexia. The tumor was very large and ulcerated. Delivery was spontaneous with birth of a normal child. The placenta was normal. The course of cancer became accelerated early in the period of lactation and the patient died late in puerperium. The second patient observed a tumor for the first time, coincidentally with early pregnancy. The tumor grew rapidly and became ulcerated. Biopsy showed carcinoma. The tumor was irradiated with protection of the fetus by covering of the mother's abdomen with a rubber apron. The patient had a premature baby in the eighth month of pregnancy, underweight but otherwise normal. The state of health of the patient rapidly deteriorated. Pleurisy from metastases developed early in the puerperium. The author concludes that the treatment of cancer of the breast is the same for pregnant as for nonpregnant women of the same age. For pregnant women there are the following indications: when the tumor is small and pregnancy is in an early stage, abortion and treatment of the tumor are indicated; in all other cases, hormones should be administered, surgery performed, or irradiation of the tumor given for as long as possible to favor viability of the fetus. Hormones, surgery, and radiotherapy are selected in accordance with the clinical type of the tumor. Irradiation is harmless for the fetus if the latter is well protected against it by covering of the mother's abdomen with the proper apron. At full term of pregnancy, spontaneous delivery or cesarean section is followed by castration, exeresis of the tumor, and postoperative radiotherapy or by radiotherapy alone if the tumor was removed during pregnancy.

Hypopituitarism (Sheehan's Syndrome) with Hyperlipemia and Xanthomas. N. Zöllner. Deutsche med. Wchnschr. 80:999-1002 (July 1) 1955 (In German) [Stuttgart, Germany].

The author presents the history of a 34-year-old woman, who at the age of 21 had experienced severe hemorrhages following delivery of a normal child. After that amenorrhea resulted and the woman became increasingly apathetic. She complained of visual disturbances in the right eye. The body hair became scanty and on examination she showed signs of myxedema, xanthomatosis of the skin, hypotension (90/70 mm. Hg), bradycardia (50 per minute), increased blood sedimentation speed, moderate anemia, reduction of the basal metabolism, moderate hypoglycemia, pseudohemophilia, and a lipemia with increase in the neutral fats, phospholipids, and cholesterol. The excretion of corticoids in the urine was noticeably reduced. Ophthalmologic examination revealed fluctuating opacity of the vitreous of the right eye and chronic iridocyclitis. The turbidity of the vitreous as the result of lipemia was probably due to the concurrence of cyclitis and lipemia. The fact that only one eye was involved speaks against the causal role of hormonal factors. Under the influence of a diet with an extremely low fat content, the neutral fats in the serum decreased to normal values. The xanthomatosis likewise subsided, whereas the phospholipids and the cholesterol in the blood remained high and unchanged. Relapse followed when the patient returned to a normal diet. During cautious treatment with a thyroid preparation, the general condition improved greatly and the plasma fats became normalized. The author feels that this was a case of Sheehan's syndrome, which is characterized by hypogenitalism, hypothyroidism, and hypoadrenocorticism, all of which are elicited by hypofunction of the hypophysis.

THERAPEUTICS

Treatment of Cardiac Insufficiency with an Oleander Combination Preparation: Preliminary Results. C. G. Bär and G. Zeitler. Deutsche med. Wchnschr. 80:1038-1039 (July 8) 1955 (In German) [Stuttgart, Germany].

Sixty patients with cardiac decompensation were admitted to the medical clinic of the university of Erlangen, Germany, and were treated with oleandryl compound, one tablet of which contains 0.05 gm. of the total glucoside of oleander, 12 mg. of pentaerythritol (Peritrate) tetranitrate and 25 mg. of sodium cholate. The authors' preliminary report is concerned with 33 of these patients who were discharged from the hospital after four weeks of treatment that was continued ambulatorily with the patients followed up for periods up to nine months. Of these 33 patients, 27 women and 6 men, whose average age was 54 years, 9 had decompensated mitral and aortic lesions, 9 had decompensated hypertension, and 15 had cardiac muscular insufficiency caused by coronary sclerosis. Five of these 15 patients had bronchopneumonia associated with high fever. Five patients with most severe cardiac decompensation were given initial treatment with strophanthin and digitoxin for a short period. Treatment with oleandryl compound was instituted after partial compensation had been achieved. The dose of the oleandryl compound varied according to the severity of the clinical state. In general, treatment was started with three tablets daily and, when necessary, the dose was doubled. Diuresis was the guiding factor. The tolerance to the drug was good; undesirable side-effects such as nausea, vomiting, and diarrhea were not observed, not even after the administration of nine tablets daily. In general, six tablets daily were sufficient for prompt and continued diuresis even in patients with severe decompensation of the right and left side of the heart in whom satisfactory removal of water could not be obtained by combined treatment with strophanthin and aminophylline. Of 23 patients who complained of angina pectoris, 19 obtained complete relief with the oleandryl compound. The evaluation of the patients' electrocardiographic records was difficult because of physiological variations in the daily rhythm. In 27 of the 33 patients, the electrocardiogram showed an abnormal curve with definite signs of damage to the muscle associated with heart action. Repeated electrocardiographic recordings in the course of the treatment with the oleandryl compound did not show excessive bradycardia, disturbances of transmission, and extrasystoles that may be frequently observed in the course of treatment with high doses of digitalis. Pronounced lowering of the ST interval, which may occur in the course of treatment with strophanthin or with the glucosides of Digitalis purpurea or Digitalis lanata, was not observed. Although the number of patients treated with oleandryl compound is small, the results obtained suggest that the drug is of value in the treatment of patients with mild or moderately severe forms of chronic cardiac decompensation, particularly in the treatment of the so-called old-age-heart. The drug is particularly suitable for ambulatory treatment, since a cumulative effect or undesirable side-effects need not be feared even after prolonged administration.

Comparative Clinical Study of Some Glycosides of Digitalis Lanata. F. Testoni and G. Lomeo. Cuore e circolaz. 39:65-85 (April) 1955 (In Italian) [Rome, Italy].

Comparative studies on three glycosides of Digitalis lanata, lanadigin, Digoxin, and lanatoside C, were carried out on 183 cardiac patients with circulatory failure. The results indicated that the therapeutic properties of the three drugs are essentially the same. The following differential characteristics were found: (1) the total initial digitalization dose that is needed when average daily doses are given orally is noticeably greater for lanatoside C (an average of 10 to 12 mg. in three to five days) than for lanadigin and Digoxin (an average of 6 to 8 mg. in three days); (2) the same is true of the daily maintenance doses, an average of 1 mg. for lanatoside C as compared with an average of 0.5 mg. for the other two drugs; (3) the ratio between the effectiveness of the orally given dose and that of the dose given intravenously is higher for Digoxin than for lanatoside C; (4) the duration of the therapeutic effect of lanatoside C is notably shorter than that of the other two drugs; and (5) the onset of toxic side-effects is commoner following the use of lanatoside C. The authors ascribe these findings to a more rapid elimination of lanatoside C through the kidneys and a more prolonged fixation of lanadigin and Digoxin on the heart muscle. They conclude that these two glycosides of Digitalis lanata are more suitable than lanatoside C for the initial treatment with average doses given orally, because the clinical findings are restored to normal more quickly. Lanatoside C gave good results when it was given intravenously. Therefore, when large initial doses are required, as in the presence of paroxysmal attacks, atrial arrhythmias with high ventricular frequency, sinus tachycardia, and all cases that call for urgent treatment, lanatoside C given intravenously in doses of 1.2 to 1.6 mg. in 24 hours is the therapy of choice. For maintenance therapy, lanadigin and Digoxin given orally are more suitable because smaller doses are sufficient, the therapeutic results are more stable, and the oral route of administration is convenient.

Treatment of Benign Arterial Hypertension with Rauwolfia Serpentina: Forty Cases. R. Armas Cruz, M. Alvo, J. Harnercker and others. Rev. méd. Chile 83:283-288 (May) 1955 (In Spanish) [Santiago, Chile].

Forty patients with arterial hypertension were treated with Rauwolfia serpentina. The majority of the patients were women of the average age of 55. Hypertension was benign, either essential or associated with arteriosclerosis in 37 patients, associated with chronic glomerulonephritis in 2 and malignant in 1. The electrocardiogram showed signs of moderate preponderance of the left ventricle in 12 patients. Roentgen examination of the heart showed moderate enlargement of the shadow of the left ventricle in 19 patients. Examination of the fundus of the eye in 27 patients showed arteriosclerosis of the retinal vessels. The treatment was given to patients during rest and on a diet with salt restriction. The preparation used contained 75% of semitotal alkaloids of the drug. It was given orally at daily progressive doses of from 4 mg. to 12 or 16 mg. for an average period of 72 days. Pure crystalline reserpine was used only in rare cases and if so used, temporarily and in daily doses that varied from 0.6 to 1 mg. All patients reported great improvement of headache, palpitation of heart, and tachycardia. Twenty-one patients exhibited complete tolerance of the drug, 16 complained of transient somnolence, nausea, and vomiting, 5 of moderate nasal congestion, and one of bronchitis that made temporary discontinuation of the treatment necessary. The results are evaluated only in relation to the hypotensive effect of the drug. The drug caused lowering of the systolic pressure of more than 20 mm. Hg in 55% of the cases. The percentage was higher in patients with the essential type of arterial hypertension. Only one patient in the group with arterial hypertension with arteriosclerosis did not react to the hypotensive effect of the drug. Low figures of arterial hypertension did not change in some patients who discontinued the treatment on their own accord. The author concludes that Rauwolfia serpentina is of great value in arterial hypertension, chiefly in essential hypertension. The patient with malignant hypertension in the group of patients observed by the author did not report for further observations.

Anticoagulation Treatment with Tromexan and Marcoumar: Micromethod Determinations of Prothrombin-Proconvertin Activity. T. Iversen. Ugesk. læger 117:873-878 (July 7) 1955 (In Danish) [Copenhagen, Denmark].

Since June, 1954, initial anticoagulation treatment with Tromexan-Marcoumar has been applied in 33 patients (27 with coronary thrombosis, 3 with deep venous thrombosis, 2 with thrombosis in the central retina vein, and in one patient prophylactically). In 23 cases the initial dose was 900 mg. Tromexan plus 9 mg. Marcoumar given simultaneously. Twenty-four hours after the initial dose the prothrombin-proconvertin activity had fallen to an average of 27%. In 10 patients who were especially exhausted and/or had lowered prothrombin-proconvertin activity before treatment, the initial dose was 600 or 900 mg. Tromexan plus 6 mg. Marcoumar. Here the average prothrombin-proconvertin activity was 31% after 24 hours. If an immediate anticoagulant effect is wanted, heparin must be given; three or four intravenous injections in the first 18 hours usually suffice. Maintenance treatment was given with Marcoumar exclusively. In most cases a single daily dose allows the prothrombin-proconvertin concentration to be kept within 10 to 30%. The maintenance dose will as a rule lie between 1.5 and 3 mg. Marcoumar, but individual sensitivity varies greatly. Thirty-one patients were treated for more than a week, 20 for more than five weeks. Of the 27 patients with coronary thrombosis, 7 died during treatment. Before start of the anticoagulation treatment the prothrombin-proconvertin activity must be determined, as the continued dosage depends on the initial reduction of the activity. When the maintenance dose is established, determination of the concentration once weekly is generally sufficient, which makes long-time treatment possible. Apart from light nosebleed in one case, no tendency to bleeding or other side-effects was observed during the anticoagulation treatment.

Nonhemorrhagic Accidents in Heparin Therapy. L. Mathieu, M. Rémy, C. Pernot and others. Presse méd. 63:1023-1025 (July 9) 1955 (In French) [Paris, France].

The nonhemorrhagic accidents of heparin therapy manifest themselves either as shock reactions or as blood hypercoagulability without shock phenomena. Though most are without lasting effect, there have been deaths from heparin administration. The incidence of these accidents is small. An analysis of the shock phenomena reported during various programs of heparin treatment shows that they vary widely in form and are independent of the amount injected or the brand used. Their severity is somewhat related to the severity of the disease and the age and condition of the patient. The commonest symptom of the shock phenomena associated with heparin administration is sharp pain in the legs. These accidents appear to be independent of those caused by excessive hypocoagulability. As to their cause, it can be said that imperfections in the products used and the unwitting introduction of pyrogens are becoming rarities, that spontaneous intolerance to heparin is still open to question, and that, rarely, heparin gives rise to intolerance reactions in allergically predisposed patients. However, the most significant type of accident is that occurring during a repeated course of therapy after interruption; here it seems that the particularly strong aggression of abrupt variation in coagulability can cause serious accidents in badly prepared, poorly fortified patients. Accidents of secondary hypercoagulability are also the result of discontinuous or abruptly interrupted therapy. The disturbances in coagulation of the original disease play a large part in the cause of these accidents. The existence of these nonhemorrhagic accidents is not sufficient reason to modify the indications for heparin treatment but should urge better, more careful conduct of the administration of the substance.

Long-Acting Coronary Vasodilator Drugs: Metamine, Paveril, Nitroglyn and Peritrate. H. I. Russek, B. L. Zohman, A. E. Drumm and others. Circulation 12:169-175 (Aug.) 1955 [New York].

The modifying action of four long-acting coronary vasodilator drugs, namely, triethanolamine trinitrate biphosphate (Metamine), dioxyline phosphate (Paveril), glyceryl trinitrate in a sustained-action tablet (Nitroglyn), and pentaerythritol tetranitrate (Peritrate), on the electrocardiographic response to standard exercise (Master-two-step test) was recorded and compared in 21 carefully selected patients with coronary disease. The drugs were administered from one to six hours before the exercise test. Metamine produced little or no significant effect on exercise response as measured electrocardiographically in all the patients. Paveril in some instances was mildly effective, but its action was not sustained and its influence was never striking even with massive doses. Only 6 of the 21 patients showed significant improvement in exercise response following the use of this drug. Paveril does not appear to be as potent as papaverine in comparable dosage. Nitroglyn, despite the effectiveness of glyceryl trinitrate in the treatment of the acute attack of angina pectoris and in prophylaxis when employed before contemplated exertion, gave disappointing results. In the usual recommended dose of 2.4 mg. (0.04 grain), the preparation appeared totally inert. With larger doses, 4.8 to 9.6 mg. (0.08 to 0.16 grain), Nitroglyn produced slight to moderate improvement in exercise response for a period of six hours after its administration in almost two-thirds of the patients tested. Nevertheless, the drug failed to induce a normal electrocardiographic response to exercise in any of the 21 patients, a result far surpassed by the sublingual administration of glyceryl trinitrate and by Peritrate respectively. Peritrate, in a dose of 10 to 20 mg., showed a marked modifying influence on the response to standard exercise in 14 of the 21 patients tested. The effect of this agent was comparable to that of glyceryl trinitrate, but its action, after a latent period of 60 to 90 minutes, could be demonstrated as long as five to six hours after the administration of a therapeutic dose. Clinical response was markedly attenuated or totally abolished, however, when Peritrate was taken after food. Of the four drugs tested, only this agent appears worthy of the designation "long-acting coronary vasodilator." Peritrate appears to satisfy the need for prolonged coronary vasodilatation in most patients with angina pectoris.

Experiences with a New Local Antibiotic. H. Klima. Wien. klin. Wchnschr. *67:524-526 (July 22) 1955 (In German)* [Vienna, Austria].

Nebacetin, a combination of neomycin and bacitracin, was applied locally in 26 patients with pulmonary tuberculosis who were treated at the sanatorium Baumgartner Höhe near Vienna, Austria. Of 14 of these patients who had been treated previously with sulfonamide, penicillin, oxytetracycline, and streptomycin and had become resistant to these drugs, 5 had chronic fistulas with mixed infection occurring after empyema and reconstructive plastic surgery; 6 had fistulas occurring after plastic repair following lobectomies and pneumonectomies, respectively; 2 had fistulas of soft tissues; and one an internal bronchial and external thoracic wall fistula after pneumothorax empyema. Instillation of the drug, which was diluted with isotonic sodium chloride solution to an amount of from 2 to 10 cc. according to the size and extent of the sinuses of the fistulas, was carried out with a blunt needle through a drain; 5 to 10 mg. of Neomycin and 250 to 500 units of bacitracin per 10 kg. (22 lb.) of body weight were administered three to four times in the course of one week, or daily if required. In 9 of the 14 patients, the fistulas healed completely in the course of two to six months of treatment; the 5 other patients were improved. The satisfactory results obtained in these 14 patients prompted the author to broaden the indications for local treatment with Nebacetin, and to use the drug for the postoperative treatment of five patients who had undergone cavernostomy, for cavity acupuncture and cavity plombage, respectively, in five patients, and as an aerosol in two patients with bronchiectasis. In the five patients with cavernostomies, cleaning of the wall of the cavity occurred rapidly, and fresh granulation tissue particularly rich in vessels developed. Cavity smears and sputums became rapidly free from bacteria. Similar phenomena apparently occurred in the wall of the cavity of the patients with cavity acupuncture. In the patients with bronchiectasis, the amount of sputum diminished and the offensive odor from the mouth subsided. Complications or undesirable side-effects did not occur in any of the 26 patients. The value of the new local antibiotic seems to consist of its efficacy in patients who already have become resistant to penicillin, oxytetracycline, and streptomycin and of the fact that, as a purely local antibiotic, it may hardly cause resistance or hypersensitivity to the drugs that are generally used.

Study on Removal of Water with Diamox in Cirrhosis of the Liver. E. Rissel, H. Schnack and F. Wewalka. Schweiz. med. Wchnschr. *85:698-702 (July 16) 1955 (In German)* [Basel, Switzerland].

Carbonic anhydrase, a zinc-containing protein, is contained in the tubular cells of the kidneys and apparently influences the kinetics of hydration and dehydration of carbon dioxide in these cells. Diamox (2-acetylamino-1,3,4-thiodiazole-5-sulfonamide), a powerful carbonic-anhydrase–blocking agent, was given to 13 patients with decompensated cirrhosis of the liver, 4 patients with cardiac decompensation, and 2 patients with edema of different genesis. Of the 13 patients with cirrhosis of the liver, an abundant diuresis occurred in 8 who thus showed a satisfactory response to Diamox. No difference in this response was observed in patients with ascites and general edema and in those with ascites only. The reduction in body weight varied from 5 kg. (11 lb.) to 15 kg. (33 lb.). Satisfactory diuresis also resulted from the administration of Diamox in four of the six patients with the other disorders. The authors recommend a dose of 250 mg. of Diamox given orally in one tablet in the morning on three successive days in the course of one week and repeated for three to five weeks. Most of the patients who did not respond to the administration of Diamox with a satisfactory diuresis had a markedly increased excretion of sodium and potassium. This dissociation of the water metabolism and the electrolyte metabolism, in contrast to the otherwise strictly coupled water and electrolyte excretion, seems to be noteworthy with regard to the mechanism of sodium retention in patients with cirrhosis and cardiac disease. The drug was ineffective in patients with excessive potassium excretion. Its effect could not be enhanced by the additional administration of potassium. Undesirable side-effects of Diamox were not observed. Mild drowsiness occured, and on several successive occasions one patient had tremor that always subsided after discontinuation of the drug.

Modern Therapy of Gout. F. Koller. Schweiz. med. Wchnschr. 85:693-697 (July 16) 1955 (In German) [Basel, Switzerland].

Twenty-seven patients with 51 attacks of acute gout were treated with Irgapyrin, a proprietary pyrazolidin containing equal parts of phenylbutazone and aminopyrine, and with phenylbutazone (Butazolidin). The average daily dose of Irgapyrin given intramuscularly was 1.5 gm., and the average daily dose of phenylbutazone given orally varied from 0.6 to 1 gm. A complete remission resulted within 48 hours in 42 attacks; Irgapyrin was given in 27 of these attacks and phenylbutazone in 15. Because of their rapid and reliable effect, Irgapyrine and phenylbutazone are superior to colchicine and corticotropin (ACTH) in acute attacks of gout. Phenylbutazone enhances the excretion of uric acid and thus produces a pronounced decrease of the serum level of uric acid. The intramuscular injection of Irgapyrin should be given into the gluteus medius, above and outside the gluteus maximus, to prevent the undesirable side-effect of sciatic pain. Other undesirable side-effects such as a tendency to retention of sodium chloride and water, leukopenia, and agranulocytosis are of minor importance in the course of the short-term treatment of the acute attack of gout. In chronic tophaceous gout, probenecid (Benemid) is the drug of choice; its average daily dose is 1 gm.

Treatment of Granulocytic Leukemia with Myleran and Demecolcin. W. Pribilla and G. Stollberg. Deutsche med. Wchnschr. 80:1027-1029 (July 8) 1955 (In German) [Stuttgart, Germany].

Of 16 patients between the ages of 18 and 71 with chronic granulocytic leukemia, 10 were treated with 1,4-dimethanesulfonoxybutane (Myleran) and 6 with desacetyl-methylcolchicine (Demecolcin), an alkaloid obtained from Colchicum autumnale. The initial daily dose of Myleran varied from 4 to 6 mg. given orally, and the maintenance dose varied from 2 mg. given three times in the course of one week to 2 mg. given daily. The maximum total dose of Myleran was 458 mg. given in the course of 130 days. Results were satisfactory in 9 of the 10 patients treated with this drug. The general condition was improved and the number of leukocytes was reduced. There was an increase in the number of erythrocytes and in the hemoglobin level. The effect of the drug became apparent within three weeks. The peripheral blood cell count showed a decrease in myeloblasts and a reduced shifting to the left. The blood count in several patients was restored temporarily to normal. Leukopenia and thrombopenia were not observed. Diminution in the size of the spleen was impressive and rapid. Only one patient with a relatively immature type of leukemia and a large number of myeloblasts in the blood and in the marrow did not respond to Myleran. Demecolcin was also given orally; the initial daily dose was one tablet containing 1 mg. of the drug. The daily dose was increased up to 10 mg. The total dose varied with the individual patient and frequently reached several hundred milligrams. In general, the tolerance to the drug was good. Occasional side-effects consisted of loss of hair and herpetiform stomatitis. Satisfactory results were obtained in three of the six patients treated with Demecolcin; a complete remission occurred in one of these patients. Both Myleran and Demecolcin inhibit chiefly the myelopoiesis and are, therefore, suitable for the treatment of chronic granulocytic leukemia. When used cautiously, both drugs have few undesirable side-effects and therapy may be continued safely for many months. The therapeutic effect of Myleran seems more reliable than that of Demecolcin.

Data on Deaths Due to Agranulocytosis in the Netherlands. *B. J. Salomonson. Nederl. tijdschr. geneesk.* 99:2044-2047 *(July 9) 1955 (In Dutch) [Haarlem, Netherlands].*

Because of the increased recording of agranulocytosis on death certificates, the author, who is connected with the central statistical office in the Netherlands, investigated this problem, giving particular attention to the cause of agranulocytosis.

Analysis of the causes of fatal agranulocytosis for the year 1952 showed an increase in the group in which drugs were the cause, and in 1954 the group with "unknown cause" showed an increase, but the author feels that the "unknown" cause may also have been a drug in many instances. In a table the author shows data on 184 fatalities of the years 1952 to 1954, in which agranulocytosis was given as a cause of death. Drugs were indicated as the cause in 103 of these cases, and "cause unknown" was listed in 39 cases. Further analysis of the 103 cases in which drugs were the cause revealed that a proprietary brand of aminopyrine had caused the agranulocytosis in 41 cases, another proprietary containing equal parts of phenylbutazone and aminopyrine was responsible for 13, sulfonamide preparations for 13, and gold for 6 fatalities; various other drugs were responsible for fatal agranulocytosis in the other 30 cases. The aminopyrine and other antipyretic drugs had been prescribed chiefly for chronic rheumatic disease.

Heparin and Corticotropin (ACTH): Analogies and Differences. F. De Matteis. Minerva med. **46:**1800-1804 (June 20) 1955 (In Italian) [Turin, Italy].

The results of clinical and experimental studies of the author and of German workers seem to support the hypothesis advanced by De Matteis in March, 1953, that heparin has a corticotropin-like action. The properties common to the two substances are: (1) stimulation of the adrenals and the thyroid and marked involution of the thymus (more evident after a short treatment period); (2) induction of severe endocrine alterations after prolonged administration of the two substances; (3) a hypocholesterinemic effect, especially on esterified cholesterol; (4) an action that modifies paper electrophoresis with a decrease of the albumins and a marked increase of the globulins; (5) an "anti-sludging" action; (6) an antianaphylactic action, which is less evident with regard to corticotropin; (7) a marked effect (antihyaluronidase and antiexudative) on the phenomena of diffusion; (8) a constant effect on peripheral eosinopenia; and (9) an antirheumatic action with respect to acute rheumatic disease in children. The endocrine alterations that are induced by the prolonged administration of the two substances are: (1) a marked loss of weight with partial atrophy of the skin and (in the animal) a more or less diffuse loss of hair; (2) a decrease in the weight of the testicles and the spleen; (3) hyperemia and edema of the hypophysis; (4) an increase in the weight of the liver and the kidneys; and (5) a slight increase in the weight of the thyroid. The action of the two substances differs with regard to the blood coagulation process, heparin prolonging it and corticotropin shortening it. However, if the two substances are used concurrently, the anticoagulant effect of heparin is increased. The reciprocal interferences and the eventual synergisms between the two substances are possible, however, only when large doses of heparin and pure preparations of corticotropin are used.

PATHOLOGY

Mycelial Forms of Coccidioides Immitis in Sputum and Tissues of the Human Host. M. J. Fiese, S. Cheu and R. H. Sorensen. Ann. Int. Med. **43:**255-270 (Aug.) 1955 [Lancaster, Pa.].

Coccidioides immitis ordinarily exists in two distinct phases, the saprophytic and the parasitic; the former, in which the fungus presents itself as a mycelial mass of hyphae, occurs in external nature and culture mediums, while in the parasitic phase the fungus has the appearance of an endosporium or spherule that occurs in animal tissues. Under certain conditions the spherules may be observed in artificial culture mediums, but, as a rule, the hyphae have not been observed in the tissues of the host. The first exceptions to this rule were the recently reported observations of hyphae of Coccidioides immitis in two types of benign residual pulmonary lesions, namely, chronic cavitation and chronic granuloma. Of 98 patients with coccidioidomycosis studied at the Veterans Administration Hospital in Fresno, Calif., 17 had persistent pulmonary lesions without dissemination. Nine of the 17 patients had cavities and 8, granulomas. Mycelial forms of Coccidioides immitis were observed in the sputum of four of the nine patients with coccidioidal cavities of the lungs. This finding has not been previously reported. Pulmonary resection or lobectomy was performed in 12 of the 17 patients, eight times for cavities and four times for granuloma. Mycelial forms of the fungus were observed in the pathological specimens of three patients with cavities and of three others with granulomas. Mycelial forms are most likely to be found on the surface of the wall of a cavity or within the necrotic debris of a granuloma. Mycelial forms will be observed with increasing frequency in tissues and discharges when the search is made in the right place with adequate stains, such as the Hotchkiss-McManus stain or fountain pen ink. Despite the theoretical risk associated with the presence of mycelial forms in the sputum of patients with coccidioidomycosis, contagiousness of coccidioidomycosis has not been demonstrated.

Interpretation of Tuberculous Lesions After Chemotherapy. J. C. Dick. Lancet **2:**216-223 (July 30) 1955 [London, England].

A fairly definite picture is now available of the changes that take place in tuberculous lesions after chemotherapy with different drugs, although there is considerable overlap in the changes found in untreated cases on the one hand and in treated cases on the other. This report is concerned chiefly with the average reactions to various drugs. The differences between the changes in recent tuberculous lesions after chemotherapy with a combination of drugs including isoniazid and those after a streptomycin combination suggest that isoniazid enables a toxic factor to be removed and real healing to occur. The same difference is present early in the treatment of chronic lesions, enabling a larger proportion of isoniazid-treated lesions to attain a satisfactory quiescent stage. Histological evidence is presented for the persistence throughout chemotherapy of dormant bacilli, that is, of bacilli that are in a state of metabolic inactivity, not reproducing, not susceptible to antibiotics, not necessarily capable of growth on ordinary media, perhaps not visible on microscopy, but able to reassume any or all of these properties. Chemotherapy with a single drug leaves a considerable proportion of lesions active, probably by altering the metabolism of the organisms so that they are no longer affected by the drug. In vitro testing for the sensitivity of the organism to the drug, although it is the only method available, is not a fully reliable index of this altered metabolic state. Streptomycin and isoniazid appear to influence the metabolism of the pathogenic organisms in different ways, and given in full doses they are apparently synergistic, since the best healing of lesions is obtained with this combination. Patients with recent lesions should be treated with a combination of chemotherapeutic drugs that includes isoniazid, to obtain resolution. The drugs should be used in their full therapeutic doses, that is, isoniazid, 200 mg. daily; streptomycin, 1 gm. daily; and aminosalicylic acid, 10 to 20 gm. daily. Diminished dosage scales should not be tried unless tests have shown them to be as effective clinically, bacteriologically, and histologically as the full doses. Patients with mixed old and recent lesions should receive similar treatment, to obtain as much resolution as possible. Resection may have to be employed to remove the remaining lesions.

RADIOLOGY

Cervical Air Myelography: Review of 130 Cases. F. Murtagh, W. E. Chamberlain, M. Scott and H. T. Wycis. Am. J. Roentgenol. **74:**1-21 (July) 1955 [Springfield, Ill.].

Air myelography is a harmless and effective method of visualizing the cervical canal and cord. It has a definite diagnostic value and is often sufficient for accurate localization, even demonstrating in some cases types of involvement of the spinal cord that cannot be seen with positive contrast. Care must be taken to secure the best possible contrast and detail in the roentgenograms, because the negative contrast obtained with air is certainly less striking than that provided by the radiopaque agents. Accurate diagnosis with air myelography depends on painstaking study of stereoscopic films of good technical quality and careful correlation of the findings so obtained with the neurological findings and the clinical symptoms exhibited by the patient during the procedure. Small quantities of air (5 cc.) are sufficient to demonstrate the lower edge of a lesion that completely blocks the cervical spinal canal, but larger quantities are needed for the visualization of nonobstructive lesions. The authors therefore devised a method of examination in which, by maneuvering the patient into various positions, 40 or 50 cc. of air injected into the lumbocaudal canal can be moved into any desired section of the spinal canal. Localized sensation, ranging from mild pressure to moderate pain, will be felt by the patient as the air seeks its upper level in the spinal canal and his subjective reaction can be used as a guide in following its upward progress. The air itself is innocuous and completely absorbable. Encephalomyelography, in which air is exchanged for fluid in the cerebrospinal canal in 10 cc. increments, was found to be the most effective method of visualizing the cervical canal and the cord and its relationship to the brain. It is recommended in cases in which the other two methods have failed to produce satisfactory visualization or in which a combined study is desired. Air myelography by one or more of these methods was carried out 142 times in 130 patients with symptoms suggesting cervical spine or cord abnormality seen at Temple University Hospital during the period from 1934 to 1949. Malformations of the cervical spine with cord compression, trauma to the cervical spine, intervertebral disk herniations and osteophytosis, and space-taking lesions of the cervical canal were among the conditions in which useful diagnostic information was obtained. The excellent visualization of the cord provided by air myelography in the cervical region is especially valuable in patients with degenerative lesions of the central nervous system. An appreciable widening of the visible air column beyond one-third the width of the bony canal in patients presenting clinical evidence of central nervous system disease without a demonstrable encroaching lesion suggests cord atrophy regardless of the measurable cord thickness. Individual variations and variability of roentgenographic magnification prevent the establishment of a fixed figure for normal cord thickness, but in all the cases in which a diagnosis of cord atrophy was made myelographically the cord measured considerably less than 8 mm. in thickness. Air myelography possesses the added advantage of being completely roentgenographic; the films obtained can be studied repeatedly by several examiners, eliminating the personal equation found in roentgenoscopy with opaque media.

Uptake and Blood Level of Radioactive Iodine in Hyperthyroidism. R. A. Newburger, S. Silver, S. B. Yohalem and S. Feitelberg. New England J. Med. **253**:127-130 (July 28) 1955 [Boston].

Data obtained from the study of 500 consecutive patients referred to the Thyroid Group of the departments of medicine and physics of the Mount Sinai Hospital were used in comparing the merits of two radioactive diagnostic techniques. The thyroid uptake at 24 hours after the tracer dose and the blood plasma levels of protein-bound I^{131} at 72 hours after the tracer dose were determined in each patient. The patients were classified as normal (euthyroid) (404) or hyperthyroid (96) before the I^{131} studies were carried out. The group as a whole included only patients who had had no previous treatment directed to their thyroid glands. Patients who had received stable iodine medication in any form were either excluded or a period of time sufficient to ensure the disappearance of all effects produced by such medication was allowed to elapse before the tests were made. Comparison of the results obtained showed that uptake studies are less accurate as a diagnostic method than the determination of protein-bound I^{131} levels at 72 hours after the tracer dose. Acceptance of a critical value for the protein-bound I^{131} of 0.27% of the administered dose per liter of plasma was associated with eight diagnostic errors, or 1.6% of errors in classification. These figures were increased to 36 and 7.2%, respectively, when the critical uptake value was taken as 61%. A critical range, rather than a critical value, had to be selected in order to reduce the diagnostic error of the uptake method to that obtained by the determination of the protein-bound I^{131} (1.6%). This range was fixed at an uptake between 42% and 69%; when values below 42% were used to diagnose the euthyroid state and those over 69% were used to diagnose hyperthyroidism, the total diagnostic error was the same as that obtained by the protein-bound I^{131} method, that is, 1.6%. The number of patients left unclassified by the use of this diagnostic range, however, was 127, or 25% of the entire series, as opposed to no cases left unclassified when the protein-bound I^{131} method was used.

Radiation Sickness in Man Following the Administration of Therapeutic Radioiodine: Relationship Between Latent Period, Dose-Rate and Body Size. J. D. Abbatt, W. M. C. Brown and H. E. A. Farran. Brit. J. Radiol. **28**:358-363 (July) 1955 [London, England].

The authors observed the symptoms of radiation sickness in 28 of 38 patients who had received a total of 44 doses of radioiodine in the form of I^{131}. The quantities administered varied from 29 to 200 mc.; these doses were given orally, after fasting, on 39 occasions and intravenously on 5. All patients were kept in bed; the only movements they made were those involved in the measurement of iodine uptake in functioning tissue and those required in routine nursing. The patients suffered from a number of clinical conditions, and there was a considerable variation in the volume, distribution, and activity of the functioning thyroid tissue present in each patient. Prior to irradiation all received treatment wtih an antithyroid drug in order to increase the uptake of iodine in the thyroid tissue when the drug was withdrawn. The symptoms resembled those occurring after a single x-ray dose. The latent period prior to onset of symptoms after radioiodine administration varied between 4 and 13 hours, compared with latent periods of 2 to 5 hours after medium voltage x-rays. It is suggested that the dose rate may be an important factor in the production of the symptoms of radiation sickness.

Further Consideration of Deaths and Unfavorable Sequelae Following the Administration of Contrast Media in Urography in the United States. E. P. Pendergrass, P. J. Hodes, R. L. Tondreau and others. Am. J. Roentgenol. **74**:262-287 (Aug.) 1955 [Springfield, Ill.].

Of 3,300 questionnaires sent to the membership of the American College of Radiology, 1,371 were answered, representing a response rate of 41.5%. Of the 1,371 replies, 1,249 gave complete information and were used in the authors' survey of deaths and unfavorable sequelae following the administration of contrast mediums for the study of the urinary tract. The two most commonly used mediums, iodopyracet (Diodrast) and sodium iodomethamate (Neo-Iopax) accounted for approximately 94% of the urinary tract studies. Sodium acetrizoate (Urokon Sodium) was used in an additional 4.6%. The quantity of contrast mediums injected in the average-sized adult was 20 to 30 cc. With the exception of sodium acetrizoate, which was used relatively frequently in 70% concentration, the higher concentrations of the mediums were rarely used in intravenous urography. Thirty-one deaths, not previously recorded in the literature, occurred after the intravenous administration of the contrast mediums. Twenty-five deaths occurred in the course of the urographic examination, and six were delayed or not clearly caused by the procedure. These deaths occurred over an 11 year period (1942 to 1952) in a series of approximately 3,800,000 urograms. In a previous survey published by Pendergrass and co-workers in 1942, 661,800 urographic examinations were reported and there were 26 deaths. Thus the percentage of deaths in the recent survey is exceedingly low. Brief histories of each of the 31 patients who died are given. The immediate deaths were preceded by dyspnea, cyanosis, hypotension, and convulsions. Sensitivity tests were performed in 15 of the 25 cases of immediate death and were interpreted as being negative. Negative hypersensitivity tests are not reliable. It is generally believed that careful history with particular emphasis on allergy is important. Many workers combine this information with one of the sensitivity tests. In the presence of a positive test and a strong allergic history, the procedure of urography is not recommended. There is a definite trend toward the use of antihistaminics before or during the procedures of urography. Current ideas about the reactions to contrast mediums, the allergy problem, and preventive measures are briefly discussed. Many mechanisms of the mild and severe reactions are not understood and further clinical and fundamental research is not only desirable but essential.

BOOK REVIEWS

International Symposium, The Hypophyseal Growth Hormone: Nature and Actions. Editors: Richmond W. Smith, Jr., M.D., Physician-in-Charge, Division of Endocrinology, Henry Ford Hospital, Detroit, Oliver H. Gaebler, M.D., Head, Biochemistry Department, Edsel B. Ford Institute for Medical Research, Detroit, and C. N. H. Long, M.D., Sterling Professor of Physiology, Yale University School of Medicine, New Haven, Conn. Symposium was sponsored by Henry Ford Hospital and Edsel B. Ford Institute for Medical Research, Detroit, and held at hospital Oct. 27-29, 1954. Cloth. $12. Pp. 576, with illustrations. Blakiston Division, McGraw-Hill Book Company, Inc., 330 W. 42nd St., New York 36; 95 Farringdon St., London, E.C.4, England, 1955.

Although no new facts or new viewpoints of major importance are here recorded, this volume gives the significant and established facts regarding the growth hormone and its effects. It is attractive, well arranged, and adequately illustrated, and appeared in the unprecedentedly short time of six months after the conference. It is arranged in five major sections, which are devoted respectively to bio-assay, the preparation and physicochemical properties of growth hormone, effects of the growth hormone on certain structures, the growth hormone and energy sources, the growth hormone and cellular systems, and the influence of the growth hormone on the mammary gland and on human metabolism. Fortunately, before plunging into the minute discussions of various aspects of the effects of the growth hormone in higher animals, the book is introduced by Paul Weiss, who with profundity discusses the biological phenomenon of growth in its broadest sense. Particularly excellent chapters cover our knowledge of the chemical nature of the hormone and the reliable tests of its effects, including a new test by Russell. The interrelations of the growth hormone with the other anterior hypophysial hormones, e. g., corticotropin, or with the hormones produced by other endocrine glands, such as insulin, constitute another field succinctly dealt with in this book.

The carping critic will discover and announce in no helpful way that the actual method of biochemical operation of the growth hormone has not been elucidated by all this effort. The comment is invidious and can be met by the simple statement that we do not as yet know completely the mechanism of action of insulin and its participation in carbohydrate metabolism. It was necessary to discover insulin, to purify it, and to then reap the rich harvest of experimentation with it. It was similarly necessary to demonstrate undeniable growth in animals as a result of anterior pituitary extracts and to detect the substance causing this growth. It has been established that the dramatic cessation of growth in hypophysectomized animals is due solely to the absence of this substance and that its subsequent presence will restore normal growth or lead to excessive growth (gigantism). The isolation of the growth hormone was more difficult, for the pituitary, unlike the pancreas, which has only one or two internal secretions, possesses six or seven of these substances. The book shows that a significant beginning effort in one direction, to elucidate the mode of operation of somatropin, is occurring, i. e., an examination of its possible effects on various enzyme systems by Gaebler and Bartlett. It was quickly seen that the pituitary thrust its ubiquitous influence into many phases of carbohydrate, protein, and fat metabolism. We now know that the growth and adrenotrophic hormones are primarily concerned here, and the clearly established metabolic effects of purified growth hormone are given in the monograph. This field was opened up by the early demonstration of hypophysial diabetes and by Houssay's discovery of the dramatic amelioration of diabetes from pancreatectomy if a concurrent hypophysectomy is done. Over 20 years of research have as yet not completely elucidated these phenomena.

The book's defects, which are few, include the omission of a badly needed author and subject index. It is not too much to state that because adequately trained participants in the symposium have brought this extensive and important material together into one place, the book will be indispensable for workers in the field and, indeed, for investigators in other fields of medical research.

The Postnatal Development of the Human Cerebral Cortex. Volume V: The Cortex of the Fifteen-Month Infant. By J. LeRoy Conel, Research Associate in Pathology, Children's Medical Center, Boston. Cloth. $12.50. Pp. 221, with 235 illustrations. Harvard University Press, Cambridge 38, Mass.; Oxford University Press, Amen House, Warwick Sq., London, E.C.4, England, 1955.

This monograph is the fifth volume in a series devoted to a general survey of the postnatal development of the nerve cells in the human cerebral cortex for the purpose of observing what changes occur in the morphology of the neurons as development proceeds. In the present volume the cytoarchitectonic state of development at the age of 15 months is described, with some comparisons with brains at 12, 13, 14, and 18 months. Nine normal brains were studied. Criteria of selection and techniques of preparation and study of the material are described in volume 1 of the series. The text is devoted to a detailed exposition of the cytoarchitectonics of the cortex using the following criteria of development: (1) width (breadth) of the cortex and each horizontal layer; (2) number of nerve cells; (3) size of nerve cells; (4) condition of chromophil substance; (5) state of development of neurofibrils; (6) size, compactness of structure, and length of processes of nerve cells; (7) number, size, and patterns of distribution of pedunculated bulbs on neurons; (8) size and number of exogenous fibers; and (9) state of myelinization of nerve fibers. The text descriptions are organized according to these criteria for 43 areas, regions, and zones of the cerebral lobes and the rhinencephalon. A summarizing chapter discusses the findings in relation to earlier stages. In this section, there are also interesting speculations on possible correlations of structure with function in the light of these findings. The numerical data obtained from this study are presented in seven tables. Illustrations of microscopic sections from each area make up the greater part of the 109 plates and provide a photographic atlas of corticocellular anatomy as revealed by several neurological staining methods. The author's style of writing is plain and straightforward. Tables are of full page size and are remarkably uncluttered and easy to use. The photographic illustrations, which make up about one-third of the book, are of high quality. There are 32 references, a table of contents, and no index. The appearance of the book is pleasing, and it is well bound. It is difficult if not impossible adequately to summarize the findings reported in this work without extensive reference to the preceding stages of development that are set forth in previous volumes of this series. The present volume is a product of researches dedicated to the painstaking task of detailed study and exposition of the cytoarchitecture of the postnatal cerebral cortex, researches that are indispensable to advances in our understanding of the broader fields of cerebral function and behavior. The subject matter of this volume (and the series), because of its highly specialized nature, would not interest the casual reader, but rather those investigators whose researches require reference to detailed accounts of cerebral cytoarchitecture.

Pathology for the Surgeon. By William Boyd, M.D., F.R.C.S., F.R.C.P., Lecturer on Humanities in Medicine, University of Toronto, Toronto, Canada. Seventh edition. Cloth. $12.50. Pp. 737, with 547 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, England, 1955.

This new edition of a work last published in 1947, under the title, "Surgical Pathology," has been extensively rewritten, and some material added, much of which can be categorized as pathological physiology. The author is well known for his undergraduate textbook of pathology. This textbook is expressly intended as an adjunct to postgraduate surgical instruction. The material is largely confined to diseases of surgical interest but, within this limitation, is widely inclusive. It is arranged by

---

These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

system and organ and contains careful outlines. Bibliographies referring to more detailed discussion are appended to each section, and for the most part these are up-to-date and pertinent. Although an attempt has been made to present the material from the point of view of the clinician, this has not been entirely successful. For example, no account is given of the obscuring of the hilar structures by the inflammatory reaction accompanying acute cholecystitis or of the intimate relation of many duodenal ulcers with the head of the pancreas. This sort of pathology is of little interest to the pathologist, but of great importance to the surgeon. The defect is nowhere more obvious than in the illustrations. Excellent microphotographs are used, but the gross material is almost exclusively black and white, for the most part fixed, and often isolated in such a fashion as to make it difficult to relate to the whole organism. Little indication is given of the relation of the pathological process to the choice of surgical procedure. With the exception of the sections on cardiovascular diseases, which are inadequate, the text presents an excellent, lucid, and concise review of the disease states usually falling within the scope of the surgeon and presents controversial aspects fairly. It should be of great value as a supplement to clinical experience.

Radiographic Atlas of Skeletal Development of the Knee: A Standard of Reference. By S. Idell Pyle, Ph.D., and Normand L. Hoerr, Ph.D., M.D. Cloth. $4.25. Pp. 82, with 29 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 24-25 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, Canada, 1955.

The successors of the late Wingate Todd of the Brush Foundation and the department of anatomy of Western Reserve University have had access to one of the nation's principal collections of roentgenograms of the developing skeletons of normal white children of known age and social background. When they set about producing an atlas of the knee from birth to full maturation at the age of 18, they did a workman-like job. As in any atlas, the plates are the principal offerings, the written material being confined to a description of the plates and a discussion of the methods used in selecting from among many hundreds the particular roentgenograms reproduced in the atlas. In the early months of postnatal life, the changes in the size and shape of epiphyses and in the shape of the ends of the shafts adjacent to them are easy to see once they have been pointed out by the authors, and the development of the tibial tuberosity is a dramatic incident of the years between 12 and 17. For some of the intermediate years, however, the changes are much more subtle. The authors stress the fact that even in normal material, selected as carefully as theirs has been, some boys of 6 will show knee development that usually does not come until a child is 8, while others will not reach the 8 year development until the age of 10. It is unfortunate that after all these years so little of the Todd material has seen the light of day in a form available to the radiologists and clinicians who need it. Painstaking atlases like this book and the earlier ones on the hand are needed perhaps by anthropologists, but clinicians would be better served by a less meticulous but more complete atlas covering the foot, pelvis, spine, pectoral girdle, elbow, and skull. Professor Hoerr and his associates at Western Reserve are uniquely situated to prepare such a complete atlas, and their publisher should see to it that they do so in the near future.

Cardiology Notebook for Preliminary Instruction in Medical Curricula. Editorial Board: *Alfred P. Fishman, M.D., chairman, and others.* Columbia University College of Physicians and Surgeons. Cloth. $2.50. Pp. 97, with illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16; 99 Great Russell St., London, W.C.1, England; 1955.

This small volume is not intended to be exhaustive or for the specialist. It does not replace larger textbooks or substitute for bedside teaching; it supplements rather than replaces. The arrangement is simple; for instance, on one page are specimens of electrocardiograms, and on the facing page a description of what may be observed and some pertinent case history data. This volume should be found interesting and informative by the student and also by the practitioner.

Philosophische Propädeutik der Medizin: Einführung in die allgemeinen geistigen Grundlagen (Geschichte, Philosophie, Biologie, Psychologie). Von Univ.-Professor Dr. Albert Niedermeyer. Band 1, Allgemeine Pastormedizin in zwei Bänden. Cloth. 128 schillings; 22.50. Swiss francs. Pp. 547. Verlag Herder, Wollzeile 33, Vienna 1, Austria, 1955.

The significance of this book is not immediately clear from the title page. It is the first of two volumes intended (page 2) to enable the medical student to find what could not be offered in his other medical courses, "especially a critical attitude toward the dogmatically transmitted descent theory, the biology of natural selection, and medical psychology." From page 132, one gathers that the book has developed in connection with a course in pastoral medicine required by the theological faculty of the University of Vienna. Accordingly, it covers in scholarly detail the whole field of medical philosophy and ethics, down to such minute questions as whether the papyraceous fetus has a soul at any time (page 483) and when the soul appears in the normal product of conception (page 412). The author's command of theological and philosophical literature is immense, and the results are important. His considerations lead him, for instance, to ridicule as insane (page 254) the suggestions of eugenicists for the improvement of the human race, to accept Kinsey's methods as right but his inferences as wrong (page 142), to denounce Einstein's relativism in science as leading to hopeless agnosticism (page 115), to blame Malthus (pages 171, 172) for ideas that Malthus explicitly deprecated, and to declare that "there can be no medical ethics" as long as science continues to teach Darwin's "false doctrine of evolution" (page 509). His line of reasoning finally leads him, as many others have been led, to defend not only the terrorizing of Galileo but also the burning of Giordano Bruno (page 115). This frightening conclusion should strike the student of logic as a *reductio ad absurdum* and should prompt him to question every premise and deduction in the book. To the author, however, there is but one truth, and it is knowable (page 115).

Any human act is necessarily followed by an endless train of consequences; hence, every physician realizes that his mission is more than just the relief of physical pain and the solution of immediate survival problems. His work is therefore sufficiently complex, but in Niedermeyer's philosophy there is the added difficulty that the fetus is tainted with original sin (pages 103, 491). Accordingly, the author is more concerned about the possibility of an eternity in limbo for the unbaptized than the possibility of a mere lifetime in earthly institutions for the unwanted or the handicapped. In his system of thought, the role of the obstetrician becomes complicated indeed. Most physicians will find this uncompromising philosophy confusing and cruel. In any case, the author has set it forth in black and white for all to judge.

Essentials of Biological and Medical Physics. By Ralph W. Stacy, Ph.D., Associate Professor, Laboratory of Biophysics, Department of Physiology, Ohio State University, Columbus, David T. Williams, Ph.D., Ralph E. Worden, M.D., Associate Professor, Physical Medicine and Rehabilitation, College of Medicine, Ohio State University, and Rex O. McMorris, M.D., Associate Professor and Chairman, Department of Physical Medicine and Rehabilitation, University of Louisville Medical School, Louisville, Ky. With introduction by Otto Glasser, Ph.D., F.A.C.R. Cloth. $8.50. Pp. 586, with illustrations. McGraw-Hill Book Company, Inc., 330 West 42nd St., New York 36; 95 Farringdon St., London, E.C.4, England, 1955.

The subjects discussed in this book include biophysical mechanics (such as motion, acceleration, elasticity, viscosity, and contraction), heat and thermodynamics, acoustics (including ultrasound), radiation (visible light, geometric optics, ionizing radiations), and electricity. Applications to therapy are suggested, but the book is occasionally weak and misleading on these points (e. g., ultraviolet radiation as a treatment for roentgen burns, page 260). The intention is to emphasize physical principles rather than therapeutic details. Applications to other aspects of medicine, however, are presented occasionally in especially interesting fashion. Examples are the use of polarized light to reveal the stresses in models of bones, the microscopy of contracting muscle, the physiology of dark adaptation, the effects of acceleration on aviators, the principle of the electron microscope, the uses of the centrifuge microscope, and the medical aspects of nuclear radiations. Since this book is probably destined to be a pioneer work in an important field, it is to be hoped that future editions will eliminate a number of faults. For example, opening chapters need to be illustrated by more specific instances. The section on instrumentation defines a "precision index" that, being based on mean deviations obtained by disregarding algebraic signs, does not fit well into further statistical procedure. It might be supplemented by consideration of validity and reliability indexes and of the conventional measures of central tendency and dispersion. The illustrations are good, the bibliography is adequate, and there is an index. The book should stimulate medical students, and it is recommended to physicians who wish to inform themselves about the rapidly developing field of medical biophysics.

Neuroglia: Morphology and Function. By Paul Glees, M.A., D.Phil., M.D., University Demonstrator and Lecturer in Physiology, University Laboratory of Physiology, Oxford, England. Publication number 260, American Lecture Series, monograph in American Lectures in Neurology. Edited by Charles D. Aring, M.D. Cloth. $5. Pp. 111, with 44 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 24-25 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, Canada, 1955.

This is a survey concerned with the nature of the glia of the central nervous system. It is primarily a review of the pertinent literature. As such, it should prove useful as a point of departure for one unfamiliar with this literature. Very few personal observations of the author are presented. The treatment of this material is superficial. Commonly, the conclusions only of the various writers are given without any of the evidence on which those conclusions were based. Some sections, such as that on gliosis, are surprisingly brief. The glia of the neurohypophysis and pineal body are mentioned on page 1 and never referred to again. Although the author continually mentions both fibrous and protoplasmic astrocytes, he at no time discusses their morphological differences or provides the reader with any information as to how he may distinguish between them. The author frequently implies that a recent writer is responsible for some concept that is actually far older and attributable to entirely different investigators, e. g., pages 14 and 15, "scheme of glial histogenesis" attributed to Kershman (1938), and page 51, "chemical trans-synaptic transmission of nervous impulses" ascribed to Eccles (1953). The author almost constantly uses the noun, glia, for the adjective, glial ("glia fibres," "glia apparatus," "glia network," "glia preparation"). There are several amazing errors in proofreading, e. g., "Wernicle" for "Wernicke." The almost complete lack of photomicrographs is surprising; the few that are reproduced are poor. On the other hand, the drawings are simple and well reproduced, except for figure 12, which is at too low a magnification. There are over 11 closely printed pages of references. The press work is good, and the index is adequate.

The Story of Medicine. By Kenneth Walker, M.A., M.B., F.R.C.S. Cloth. $6. Pp. 343, with 51 illustrations. Oxford University Press, 114 Fifth Ave., New York 11, 1955.

In the first part of this book, medical discoveries and medical discoverers are dealt with in chronological order. Medical pioneers are depicted as their fellow men saw them, against a background of their own times. In the second part, the rise of specialization and the division of medicine into a number of different fields of research are discussed without placing events in strict chronological order. Whereas medicine originally advanced in a haphazard way, no medical theory or discovery being accepted until it made its entry into the world at the right psychological moment, current medical progress has become more impersonal and is more and more the result of collateral advances both in the medical field and in allied scientific disciplines. Reading this book should provide a rewarding experience for the reader, be he a physician or a member of the laity, as the engrossing story of medicine is traced through the ancient civilizations, the medieval period, and the Renaissance down to the present era. Physicians and their art have always had a fascination for the world at large, and this book should further cement that feeling.

Surgical Physiology of the Adrenal Cortex. By James D. Hardy, M.S., M.D., F.A.C.S., Professor and Chairman, Department of Surgery and Director of Surgical Research, University of Mississippi, University, Miss. Publication number 266, American Lecture Series, monograph in Bannerstone Division of American Lectures in Surgery. Edited by Michael E. De Bakey, M.D., Professor of Surgery, Baylor University College of Medicine, Houston, Tex., and R. Glen Spurling, M.D., Clinical Professor of Surgery, University of Louisville, Louisville, Ky. Cloth. $5.75. Pp. 191, with 34 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 24-25 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto, Canada 2B, 1955.

This book is concerned with function of the adrenal cortex in conditions of interest to surgeons. It is well written and displays evidence of a deep knowledge of the subject by the author. Following an introductory chapter, four sections of the book are concerned with decreased adrenocortical function due to stress evoked by surgical operations, burns, malnutrition, and cancer. Chapters on increased function of the adrenal then follow. These are concerned with cortical hyperplasia and adrenal tumors. The book closes with a section on the present status of corticotropin and cortisone in conditions that the surgeon may encounter. In a special chapter, the author evaluates the present status of bilateral adrenalectomy as a treatment of essential hypertension and metastatic cancer, and most surgeons will agree with his conclusions. In hypertension, adrenalectomy offers at best only a moderate hope of significant improvement in any given patient. In some patients with advanced mammary cancer, adrenalectomy will produce considerable improvement.

Talking with Patients. By Brian Bird, M.D., Associate Professor of Psychiatry, Western Reserve University, Cleveland. This material was published in *American Practitioner and Digest of Treatment* for May, 1955. Cloth. $3. Pp. 154. J. B. Lippincott Company, 227-231 S. 6th St., Philadelphia 5; 2083 Guy St., Montreal, Canada; Sir Isaac Pitman & Sons, Ltd., 39 Parker St., Kingsway, London, W.C.2, England, 1955.

This book fills a needed place in the armamentarium of the practitioner of medicine. It is safe to say that, all too frequently, the practitioner devotes too little time to a discussion of the patient's problems with him and by him. If more attention were given to this phase of medicine, there would be fewer cult practitioners. The book is clearly and well written. It is divided into parts dealing with the problems of adults and those of children. It might well be described as a psychology primer. Unfortunately, most of the work has to do with history taking, and too little is devoted to advice and instruction after the diagnosis has been established. The book will be appreciated particularly by those who have made the mistake of using leading questions. In the comedy "Harvey," the young psychiatrist was attempting to find out how the cordial and genial alcoholic came to name the phantom Harvey. Very knowingly and very intently, he asked him what his father's name was. Obviously the answer he expected was Harvey. To the psychiatrist's great surprise and consternation, the answer was John. Avoidance of such a mistake is clearly outlined in this book. The problems dealt with are mainly psychological and sometimes psychiatric. The author, by his training and work, is particularly well fitted to discuss this pattern of treatment. This book should, and I believe will, be read by many practitioners. The general practitioner, internist, and surgeon should profit by it. It cannot be called a deep reference work but rather a handy desk type of reference book.

Clinical Biochemistry. By Abraham Cantarow, M.D., Professor of Biochemistry, Jefferson Medical College, Philadelphia, and Max Trumper, Ph.D., Basic Science Coordinator, Naval Medical School, National Naval Medical Center, Bethesda, Md. Fifth edition. Cloth. $9. Pp. 728, with 54 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London W.C.2, England, 1955.

The authors have rewritten their popular book because they think the gap between clinical medicine and "fundamental" biochemistry and physiology (which gap this book bridges) has narrowed sufficiently so that the practicing physician can read technical treatises. In short, they believe that the elementary treatment used in the earlier editions is no longer appropriate. These remarks do not mean that the text is difficult to read; the style is as lucid and smooth as ever. Every topic the reviewer can think of that relates to biochemical approaches to diagnosis or management of clinical disorders is treated here. Recent theories on topics treated before are incorporated along with much new material on liver and kidney function; abnormalities in plasma protein; nucleic acids; metabolism of uric acid, prophyrin, iodine, and potassium; lipoproteins; fatty liver; acid-base balance; biochemical aspects of diet; and the diagnosis of disorders in the functioning of endocrine glands, especially of the thyroid and adrenal glands. The chapter on hormones and endocrine function was written with A. E. Rakoff, who also helped in the fourth edition. As in earlier editions, directions are not given for performing tests and assays, because such directions are available in laboratory manuals. To keep the book to a reasonable size, the authors have adopted smaller type and have relied on the clarity of the type face and the heavy leading to make the text clearly legible. Space also is saved by giving brief lists of selected readings instead of longer bibliographies and by omitting references in the text. Biochemical abnormalities in the disease states are no longer listed separately, because this information can be obtained through the index. The table of contents and indexes are extensive and seem to be accurate. Every physician who relies to any extent on the clinical laboratory for help in diagnosis and prognosis should have access to this book.

The Prevention of Disease in Everyday Practice. By Isadore Givner, B.S., M.D., F.A.C.S., Associate Clinical Professor of Ophthalmology, New York University Post-Graduate Medical School, Maurice Bruger, M.Sc., M.D., C.M., Associate Professor of Medicine, New York University Post-Graduate Medical School, New York, and contributors. Cloth. $20. Pp. 964, with 51 illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1955.

This interesting approach to prevention of disease rests to a large extent on the imposing list of contributors and to the editorial guidance of the authors. The book is simply written, the chapters logically divided, and the descriptions adequate for this type of presentation. One will not find extensive or theoretical discussions but rather highlights of clinical features that are particularly pertinent to the subject under discussion. It should prove to be a useful and handy reference book for the practitioner, especially when he integrates it with other more exhaustive treatises on the special subjects that are embraced in this volume. Perhaps the potential usefulness of the book can be summed up by referring to it as a working handbook.

Handatlas der Cystoskopie und Urethrocystoskopie. Von Dr. med. O. Kneise, a.o. Professor für Urologie an der Martin-Luther-Universität Halle, und Dr. med. M. Stolze, dozent für Urologie, Martin-Luther-Universität Halle. Fourth edition. Cloth. 44 marks. Pp. 112, with 130 illustrations. VEB Georg Thieme, Hainstrasse 17-19 Aufg. C, Leipzig C 1, Germany, 1955.

This is a new edition of an atlas first published in 1907. The third edition was published only two years ago, and, apparently as a result of wide demand, the fourth edition has now been printed. Changes in the contents of this edition are few. The book consists largely of a series of aquarelles of lesions in the bladder as seen through the cystoscope. As in previous editions, this atlas has an advantage in the fact that the pictures were made by urologists who were also artists. The aquarelles offer life-like reproductions of the different pathological lesions described. The atlas should be of great help to the beginner in the use of the cystoscope.

Pelvo-Spondylitis Ossificans: Rheumatoid or Ankylosing Spondylitis. A Roentgenological and Clinical Guide to Its Early Diagnosis (Especially Anterior Spondylitis). By Ragnar Romanus and Sven Ydén. Translated by Joan Whitehouse. Cloth. $8.50. Pp. 163, with 55 illustrations. The Year Book Publishers, Inc., 200 E. Illinois St., Chicago 11; Ejnar Munksgaards Forlag, Nørregade 6, Copenhagen K, Denmark, 1955.

In this monograph, the disease we commonly know as rheumatoid spondylitis, is described under a new name, pelvo-spondylitis ossificans. The authors' purpose in writing the book appears to be to trace the course of this entity from its inception to the final stages. It is based mainly on clinical and roentgenographic observations in a large series of patients with rheumatoid spondylitis. The authors discuss clinical signs and symptoms of the early sacro-iliac involvement, as well as the spinal lesions and the paravertebral calcification noted in pelvo-spondylitis ossificans. The first part consists of descriptive material, and the second is devoted to roentgenograms of the various phases of rheumatoid spondylitis. The book is printed on good paper in a large type that is easily read. The illustrations might have served the reader better had they been incorporated with the descriptive material rather than confined to a separate section. The bibliography is complete, although the references in the text at times interfere with the effectiveness of the writers' style. The book might have been of greater value, if there had been a chapter on the treatment of this disease. This monograph adds little to what has already been written on the clinical and roentgenographic findings of this subject. It has value, however, as a reference book.

Society and Medicine. Iago Galdston, M.D., editor. New York Academy of Medicine, lectures to laity, no. XVII. Cloth. $3. Pp. 131. International Universities Press, Inc., 227 W. 13th St., New York 11, 1955.

For the past 20 years, the New York Academy has been actively engaged in acquainting the general public with current advances in medical progress. The earliest lectures dealt with specific diseases, but in recent years they have touched on distinctive trends in medical and scientific thinking in order to orient and guide a better medically informed public. This small book comprises six lectures devoted to the theme that society and medicine are intricately interrelated. "They suggest ways in which we may effectively come to grips with the problems, change the methods and improve the processes both of medicine and of societal existence." The first essay deals with diseases and their local setting; the second is concerned with the thesis that ethics are rooted in biology; and the third demonstrates the roles of conflicts, deprivation, and frustration in neurotic behavior. The remaining essays discuss the extent to which environment can affect hereditary potentials, the medico-social factors involved in the process of growing up, and the importance of man's nutritional environment. This book is both thoughtful and provocative and is recommended for mature readers.

Principles of Medical Statistics. By A. Bradford Hill, C.B.E., D.Sc., Ph.D., Professor of Medical Statistics in University of London (London School of Hygiene and Tropical Medicine), London. Sixth edition. Cloth. $4. Pp. 314, with 13 illustrations. Oxford University Press, 114 Fifth Ave., New York 11, 1955.

In pleasing contrast to the obscurity, evasiveness, and affectation of many other books in the field, this one makes an uncompromising frontal attack on the subject, giving the necessary details accurately. The author has kept in mind the questions that most medical readers will want him to answer and is aware of the difficulties most likely to beset the student. He has supplied an excellent set of numerical problems; the answers are worked out fully on pages 271-287. The necessary tables are included, and there is a good index. An entirely new chapter on clinical trials and corresponding changes in the opening and closing chapters are a feature of this edition. It is recommended.

Practical Oral Surgery. By Henry B. Clark, Jr., M.D., D.D.S., Chairman, Division of Oral Surgery, School of Dentistry, University of Minnesota, Minneapolis. Cloth. $8.50. Pp. 392, with 223 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1955.

This small book, begun as a textbook for undergraduate dental students, is believed by its author to have "taken the form of a handbook of what the dentist in general practice should know about oral surgery." Both these purposes have been admirably accomplished by the use of a sequential approach to each problem and a profuse use of excellent illustrations that include line drawings, wash drawings, photographs, and roentgenograms. Captions of illustrations are concise, as is the text material, which is presented in an expanded outline form. The absence of the traditional chapter on local anesthesia may be a disadvantage to some possible purchasers. The chapters on hospital practice, drugs and pharmaceutical preparations, and the art of practice are entirely new to textbooks of oral surgery and appear to be ample justification for the book. The style is concise, the printing excellent, and the index complete. To those for whom it was intended, this should be a welcome first edition.

QUERIES AND MINOR NOTES

TETANUS IMMUNIZATION FOR FOOTBALL PLAYERS

To the Editor:—*Our high school football field is used also as a show ground for a junior fair; cattle, horses, and other livestock are stabled and paraded on it. Should players using this field be required to have tetanus immunization? If so, how frequently should booster shots be given?*

Charles H. Denzler, M.D., Sumner, Wash.

Answer.—If horses, cattle, and other farm animals are stabled, paraded, or grazed on an athletic field, contamination of the soil with tetanus and other clostridial spores is highly probable. The practice of using such an area for a football field is unwise. Players using this field should be required to have a series of three injections of tetanus toxoid for the production of basic immunity against tetanus. Although it is now established that the basic immunity persists for 12 or more years after immunization, it would seem wise to give each football player at the beginning of the season a booster shot. This would afford him an adequate level of tetanus antitoxin circulating in his blood during most or all of the football season. In the event of an injury, additional booster shots could be given.

RELEASE OF TOURNIQUETS

To the Editor:—*I still read in first-aid literature that the tourniquet should be released every 20 minutes. In my intern days I remember tourniquets being applied to the legs for well over an hour in orthopedic operations. What is the proper recommendation as to the length of time the tourniquet should be placed on a limb without ill-effect to that limb?*

Paul W. Hughes, M.D., Fort Lauderdale, Fla.

Answer.—While the time-honored first-aid recommendation that a tourniquet be released for a few seconds every 20 minutes is firmly entrenched in first-aid literature, undoubtedly it has no basis on actual experimental findings. It is merely an opinion that has become incorporated firmly in a certain type of literature. The writer has been interested in this subject, and it is his opinion that the time intervals recommended by surgeons queried on this matter tend to be conservative and that in their own actual experience they have left tourniquets on much longer than the recommended time without any damage. Most of them will admit this on persistent questioning. The writer has many times left a tourniquet on an extremity for 90 minutes and occasionally up to two hours, without apparent harm. Even though most of the time limits recommended for tourniquet use are based on clinical experience, certain theoretical considerations have a bearing on the matter, particularly those concerned with the character of the tourniquet in its relation to local tissue damage from pressure and the temperature conditions under which the tourniquet is used. This last is probably the most important single factor affecting the length of time that a tourniquet can be left on without risk of permanent injury. If a tourniquet constricts an extremely narrow band of tissue it may do harm through direct trauma to the local tissues and particularly to the blood vessels. This possibility is enhanced greatly if atheromatous plaques are present in a patient with advanced arteriosclerosis. The actual pressure exerted by a rubber tube type or Esmarch bandage type of tourniquet may be great if used by inexperienced individuals. The various pneumatic tourniquets, using a pressure gauge of some type, usually cover a much wider band of tissue, do not exert excessive pressures, and are therefore much safer. Temperature level has a marked effect on the survival of tissues. It is probable that a tourniquet, applied to an extremity in an air-conditioned room where the extremity is permitted to cool several degrees after the application, could be left on for a much longer time. Experiences with refrigeration anesthesia suggest the probability that if an extremity is properly cooled a tourniquet may be left on for several hours without irreversible tissue damage. Probably there is a direct proportion between the temperature maintained in the extremity (down to freezing) and the length of time the tourniquet may be safely left in place. Since tourniquets may be applied in emergency by relatively inexperienced individuals, under conditions of extreme high temperature on certain occasions, and since a very temporary release of a tourniquet can do no particular harm, it would seem that the 20 minute limitation recommended in first-aid literature is probably a safe rule for over-all general use, under first-aid conditions.

BRADYCARDIA DURING ANESTHESIA

To the Editor:—*A 58-year-old man with a preoperative blood pressure of 122/70 mm. Hg and a pulse rate of 64 underwent cholecystectomy and appendectomy under endotracheal cyclopropane-anectine drip anesthesia. Early in the operation, following exploration of the abdomen and traction on the liver and on the gallbladder, there was a period of bradycardia (pulse rate 36 to 40) and hypotension (systolic blood pressure 60 to 70 mm. Hg). After changes in level of anesthesia, changes in anesthetic agent, and increased ventilation proved ineffective, a pulse rate of 60 and a blood pressure of 110/70 mm. Hg were restored after intravenous administration of 1/200 grain (0.3 mg.) of atropine. Total period of bradycardia and hypotension was about 10 minutes. 1. Does this patient have an increased risk of postoperative coronary thrombosis or cerebrovascular accident? 2. Would nasal administration of oxygen for 24 hours postoperatively have prophylactic value against coronary thrombosis and/or cerebrovascular accident? 3. What other management would be suggested?*

Aviva S. Hoyer, M.D., Los Angeles.

Answer.—1. There is no reason to believe that fainting, which causes profound bradycardia and hypotension, or a similar vagal episode during anesthesia and laparotomy, will predispose to coronary thrombosis or cerebrovascular accident either during or after the episode. 2. The administration of oxygen after a fainting episode is not necessary and probably would be ineffective as prophylaxis for impending cerebral or cardiac accidents due to any cause. 3. No medicament other than atropine seems necessary in a case of this sort.

DIAGNOSIS OF CELIAC DISEASE

To the Editor:—*Please outline the differential diagnosis of celiac disease, including the essential points in laboratory diagnosis and the newer concepts in the etiology, treatment, and management.*

M.D., Canada.

Answer.—Idiopathic celiac disease is a chronic nutritional disorder of children characterized by abdominal distention and associated with diarrhea with large, pale, greasy, foul-smelling stools. Idiopathic celiac disease, in which causal factors are not clearly defined, must be differentiated from cystic fibrosis of the pancreas and obstructive, short-circuiting, and chronic inflammatory lesions of the intestine, among which may be malrotation of the intestine, gastrocolic fistula, regional ileitis, chronic giardiasis, and abdominal tuberculosis. Idiopathic celiac disease is essentially a disorder of intestinal assimilation, in contrast to cystic fibrosis of the pancreas in which the difficulty concerns enzymatic digestion of foods rather than assimilation. The explanation of the assimilatory defect is still obscure. Two

---

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

factors seem to be present, a constitutional peculiarity that renders these patients peculiarly susceptible to a trigger mechanism, which is usually a parenteral infection or in some cases psychic trauma. In making the differential diagnosis roentgen examinations of the gastrointestinal tract excludes various conditions associated with partial or intermittent obstruction. Chronic enteric infections are ruled out by bacteriological studies. The chief problem is differentiating from cystic fibrosis of the pancreas. In idiopathic celiac disease the onset is rarely under six months, and there is a tendency to spontaneous recovery. Furthermore the duodenal enzymes are normal, while in pancreatic disease they are all very low. The serum proteins are usually reduced, while in pancreatic disease they are usually normal. Digestion of gelatin film by stool is usually positive, and the glucose tolerance test is flat, while in pancreatic disease the former is negative and the latter often normal. The amino acid absorption is normal in celiac disease, while in pancreatic disease the curve is flat. Absorption of vitamin A given in alcohol is impaired in celiac disease, while it is normal in cystic fibrosis of the pancreas. Probably the simplest and most reliable tests are the duodenal enzyme determinations, glucose tolerance test, and vitamin A absorption. X-ray examinations are also of great help. In idiopathic celiac disease there is a persistence of the infantile clumping pattern, while in pancreatic disease this is usually absent. The demonstration of latent infection or parasitic infestation is not infrequently found in celiac disease. Treatment consists mainly of maintaining the patient's nutrition. Dietary measures vary, and it is generally agreed the diet should be high in protein. Most clinicians favor the restriction of fat. The tendency in recent years has been to feed the simple sugars and to avoid polysaccharides of high molecular weight. Vitamins should supplement the diet. Anemia, when present, should be treated with iron. Drugs play little part in therapy except in eradicating infection.

DETERMINING THYROID STATUS

To the Editor:—*In a patient who is taking 1 or 2 grains (6 or 13 mg.) of thyroid per day, is there any way of determining the true thyroid status, other than stopping the medication and waiting three months and then doing radioiodine uptake, protein-bound iodine, and/or basal metabolism tests?*

Ephraim M. Katz, M.D., Bronx, N. Y.

Answer.—A simple method has been described by (Jeffries, W. K., and others: Value of Single Injection of Thyrotropin in Diagnosis of Obscure Hypothyroidism, *New England J. Med.* 249:876-884 [Nov. 26] 1953), utilizing the stimulating effect of thyroid-stimulating hormone in the thyroid gland. On the first day a tracer dose of radioactive iodine (I^{131}) is administered and the thyroid uptake determined after three hours. On the next day the residual I^{131} in the thyroid gland is estimated, a second tracer dose is administered orally along with 10 mg. of thyroid-stimulating hormone administered intramuscularly and a second three-hour uptake is determined. The ingestion of thyroid does not prevent a response to the injection of thyroid-stimulating hormone. If a primary hypothyroidism exists there will be no response to thyroid-stimulating hormone. If the hypothyroidism is secondary to pituitary deficiency there will be a sharp increase in the uptake on the second day. If the patient is euthyroid and receiving thyroid medication, there will be an increase in uptake similar to that of a euthyroid individual without medication. If the patient is hyperthyroid and is receiving desiccated thyroid little suppression of thyroid uptake will be found with the control test. In euthyroid individuals thyroid medication of 1 grain (6 mg.) or more suppresses uptake. (Greer, M. A., and Smith, G. E.: Method for Increasing Accuracy of Radioiodine Uptake as Test for Thyroid Function by Use of Desiccated Thyroid, *J. Clin. Endocrinol.* **14**:1374-1384 [Nov.] 1954). An elevation of protein-bound iodine following thyroid-stimulating hormone can be used in a similar manner as I^{131} uptake. The technique of the thyroid-stimulating hormone test has not been standardized. Some make use of a six hour uptake, others use a 24 hour uptake, and others use several injections daily for one or more days (Schneeberg, N. G., and others: Diagnosis of Equivocal Hypothyroidism Using Thyrotropic Hormone (TSH), *J. Clin. Endocrinol.* **14**:223-231 [Feb.] 1954), determine the 24 hour thyroid uptake and approximately two weeks later repeat this procedure following three daily consecutive intramuscular injections of 20 to 30 mg. of thyroid-stimulating hormone. This method gives greater percentage increases in thyroid uptake and is perhaps more accurate but is more troublesome. Thyroid-stimulating hormone is obtained from Armour Laboratories under the name of Thytropar in 10 U.S.P. units per ampul. Four units is equal to 2.5 mg. of thyroid-stimulating hormone, as reported in the literature.

DYSMENORRHEA

To the Editor:—*Please outline the therapy for an adolescent with dysmenorrhea. Need any differential diagnosis be entertained in a girl who is menstruating and suffers severe lower abdominal pain at the same time?* *M.D., Massachusetts.*

Answer.—Differential diagnosis is definitely indicated. This consultant proceeds with the following treatment: (1) careful physical examination and pelvic examination and careful examination of the posterior fornix to detect migrating, developing endometrial cysts; (2) diagnostic dilation, curettage, and transtubal insufflation by the method of Rubin to determine if there is tubal obstruction that is confined to the lumen and is making it impossible to diagnose by bimanual examination; and (3) if there is definite retroversion or retrocession with descensus, a Smith-Hodge pessary inserted and worn by the patient several months to determine if the position of the uterus causes the pain. If a definite diagnosis of primary, or essential, dysmenorrhea has now been established, the following is the therapeutic procedure. A detailed outline of the problem of menstruation is discussed with the patient. The fact that the condition is more severe in the nervous type with a low threshold of pain is emphasized. The need of exercise for building of the body is also emphasized, as many of these people are of sedentary habits. Emphasize the fact that there is no real change in the organism and no definite proof that there is an alteration in estrogen or progestogens as causative factors. In regard to medication and treatment, the following are given: (1) encouragement; (2) aspirin, Bufferin, or Anacin; (3) bed rest not encouraged; (4) hot water bag—some patients prefer cold water bags; (5) mild sedation (Acetanilid is supposed to be quite efficient. Morphine derivatives and alcohol should be absolutely prohibited); (6) substances containing benzedrine may be helpful; (7) estrogenic substances may be of value by stopping ovulation as shown by Kurzrock (it is known that pain does not occur with an ovulatory cycle); and (8) finally dilation and curettage may be done and repeated if necessary. If all of these are of no avail one must consider an operation that includes a good suspension of the uterus with plication of the uterosacral ligaments and painstaking sacral neurectomy; the latter at times is quite efficient. Severe dysmenorrhea is infrequent. If pain persists throughout the period and is of a dull heavy nature it is most likely secondary; the primary type is spasmodic; labor-like pains prior to the onset of the flow, and when the flow is established the pain is relieved.

HYPOTHETICAL VENEREAL DISEASE QUESTION

To the Editor:—*As a hypothetical question let us assume that a naval ship puts into ports where the sailors all go on leave after a long time at sea. Would a substantial injection of penicillin protect these men against venereal disease?*

M.D., Nebraska.

Answer.—In theory, it would be possible to protect a ship's company about to go on shore leave for four or five days against the acquisition of syphilis and gonorrhea (but not of lymphogranuloma venereum or granuloma inguinale) by the intramuscular injection of 600,000 units of a repository penicillin preparation given at the time the sailor leaves the ship. Such protection would probably last only for the specified period of four to five days and no longer. In practice, however, this is both a visionary and an intolerable suggestion. It would involve the administration of penicillin to a great many men who do not propose to expose themselves to venereal disease, and who would, therefore, rightfully object to the procedure. It would involve, moreover, the medicolegal issue of the invasion of the sanctity of the person by means of a surgical instrument (a needle) carried out without the patient's consent. Such a procedure would, moreover, be indefensible on moral grounds and would be opposed, not only by the Chaplain's Corps but also by medical and command officers. On the other hand, penicillin administered orally after exposure in a dose of 250,000 units is highly effective in the prophylaxis of gonorrhea, provided the penicillin is taken within one hour of the suspected exposure. There is some degree of protection for as long as 12 hours after exposure. The use of orally given penicillin for the prophylaxis of syphilis is probably ineffective, since repeated doses over a period of several days and to a total of several million units would be necessary.

CATARACT

To the Editor:—*In a case of posterior cupuliform cataract (posterior subcapsular or saucer type) if one would do a planned extracapsular extraction, and remove all of the anterior capsule at the time of surgery, would the patient need a capsulotomy later? In other words, does the posterior cupuliform opacity affect the posterior capsule of the lens, making it opaque and necessitating a secondary operation (capsulotomy) or is the opacity truly subcapsular as the name implies?*

M.D., Pennsylvania.

Answer.—The cupuliform cataract involves posterior cortical region, and the posterior capsule is not included. However, since other portions of the lens frequently participate in opacification with cupuliform cataract involvement of the posterior capsule would not be unusual. This type of lens responds nicely to extracapsular extraction and there is surprisingly little cortex. However, there can be no assurance that a subsequent needling will not be required.

SULFONAMIDES AND SODIUM BICARBONATE

To the Editor:—*In* The Journal, *Feb. 26, 1955, in Queries and Minor Notes, page 780, a question on the use of sodium bicarbonate with sulfonamides for systemic administration was answered, and no mention was made of the widely used sulfonamide mixtures such as the sulfapyrimidines (sulfadiazine, sulfamerazine, and sulfamethazine). The answer inferred that only with sulfanilamide and sulfisoxazole is one reasonably sure of freedom from crystalluria without concomitant administration of alkali. The danger of crystallization depends on the amount of sulfonamide administered, in addition to solubility. When combinations of sulfonamides are used, the likelihood of crystallization depends not on the total dosage but on the amount of each single component in the mixture. The evidence for diminished crystalluria with the use of sulfonamide mixtures has been well documented.* Lehr (Proc. Soc. Exper. Biol. & Med. **58:***11, 1945; ibid.* **64:***393, 1947;* J. A. M. A. **139:***398, 1949;* Brit. M. J. **2:***601, 1950) has published experimental and clinical experiences in several reports in the English literature since 1945 and has shown that administration of combined sulfonamides without adjuvant alkalinization has given rise to low incidence of crystalluria. Frisk, Hagerman, and co-workers* (Nord. med. **29:***639, 1946) reported similar results in the Scandinavian literature. Flippin and Reinhold* (Ann. Int. Med. **25:***433, 1946) using mixtures of sulfadiazine and sulfamerazine without adjuvant alkali reported considerably less crystalluria than when single sulfonamides were administered.*

No case of renal obstruction due to these triple sulfonamides has been documented in the literature, despite the fact that multiple sulfonamides have been widely prescribed for years in the United States. It may be that the relatively obsolete sulfonamides, such as sulfanilamide and sulfapyridine, were included in the discussion and sulfonamide mixtures were ignored because the inquiry originated in India, where triple sulfonamides are not widely available. However, the above is submitted to set the record straight for the American and Canadian reader.

Richard A. Carey, M.D.
American Cyanamid Company
30 Rockefeller Plaza
New York 20.

SNAKE BITE

To the Editor:—*In* The Journal *for July 30, 1955, page 1235, an inquirer is given a description of Dr. Stahnke's excellent "L-C" treatment for snake bite. Dr. Stahnke's publication of this technique for patients gives credit to my animal experiments that established the principle. Presumably ethyl chloride is recommended because it might be carried on trips, where ice could not be carried. If ice is obtainable, even before a bucket is found, Dr. Stahnke would probably agree that direct application of ice to the area is best. Incisions may be added in dangerous cases. Besides my experimental publications, I have urged this treatment for snake, spider, scorpion, wasp, or other poisoned wounds (even mosquito bites) in two letters* (J. A. M. A. **139:***616 [Feb. 26] 1949; ibid.* **151:***1156 [March 28] 1953). Two other answers to inquiries* (J. A. M. A. **150:***1549 [Dec. 13] 1952; ibid.* **153:***178 [Sept. 12] 1953) prescribed treatments, omitting refrigeration. This was particularly unfortunate in the recommendation for coral snake bite, which on theoretical grounds should respond excellently to cold, though it is otherwise painful and dangerous.*

Annual deaths from snake bite are estimated at 25,000 to 35,000 for Asia, 3,000 for South America, 300 to 500 for North America including Mexico, smaller numbers for Europe, and large unknown numbers for Africa. Ninety-five per cent of the bites are on limbs. It should be made known that not a single death from these bites is necessary. Assuming that a bite is judged to be fatal, for example, that somebody in a wilderness remote from any therapeutic aid is bitten by the largest bushmaster or king cobra, my experiments showed that it is always possible to save life at the cost of a limb by promptly applying a tight permanent tourniquet. Amputation can then be deferred for a day or two if necessary. Such a tourniquet is very painful for several hours, but so is the snake bite. A tight tourniquet should never be applied without refrigeration unless the limb is to be sacrificed. With refrigeration, Dr. Stahnke wisely limits the tourniquet to five minutes, then the refrigeration alone is continued for a selected number of hours.

Frederick M. Allen, M.D.
1031 Fifth Ave.
New York 28.

To the Editor:—*Having seen the answer to a question on snake bite in* The Journal, *July 30, 1955, page 1235, I am prompted to offer a few comments. The L-C method proposed by Herbert L. Stahnke, Ph.D., professor of zoology and director of the poisonous animals research laboratory, Arizona State College, was ably discussed by Dr. Frederick Shannon at the first International Conference on Venoms, in Berkeley, Calif., in December, 1954. His paper, with the others read at the conference, is now in press, to be published in a symposium volume under the title "Venoms." His findings were in agreement with the brief description given in the answer.*

Although it is true, as stated by your consultant, that "tourniquet, multiple incision, and suction technique following the head of swelling is still the local treatment of choice" in Crotalus envenomization, he neglected to mention the importance of neutralizing the venom received in the bite with specific serum. Especially in severe envenomization by crotaline species, when it is impossible to remove sufficient venom by purely mechanical measures, is it imperative to administer an adequate dose of antivenin at the earliest moment. As pointed out by other contributors to the conference, the venoms of crotalids break down the blood vessels; thus permeation of the body by the serum may be impeded if specific treatment is delayed. Incisions on a digit are lawways contraindicated, since, as emphasized by Dr. Shannon, the trauma of a knife blade increases tissue damage and may be responsible for ultimate gangrene, necessitating amputation.

Mahlon Z. Bierly Jr., M.D.
Wyeth Laboratories
1401 Walnut St.
Philadelphia 2.

THE JOURNAL

of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 159, NO. 9 CHICAGO, ILLINOIS OCTOBER 29, 1955

COPYRIGHT, 1955, BY AMERICAN MEDICAL ASSOCIATION

MANAGEMENT OF DIABETES MELLITUS DURING KETOACIDOSIS, ACUTE INFECTION, AND SURGERY

Joseph I. Goodman, M.D., Cleveland

The three commonest acute complications in diabetic patients are ketogenic acidosis, acute infection, and surgical or traumatic events. It will be shown in this paper that the underlying pathological physiology is the same regardless of which condition prevails. With this concept in mind, the management of these diabetic complications is greatly simplified. A regimen is presented that is based on the physiological mechanism of ketogenesis and applicable to any of these complications.

CAUSES OF DIABETIC ACIDOSIS AND COMA

Mechanism of Ketogenesis.—Results of experimental studies during the past decade have altered the concept of ketone formation, and ketones are no longer considered abnormal metabolites. The evidence favors the theory that ketones are normal end-products of fat catabolism and are made in significant quantities solely in the liver whence they are distributed to the blood. A liver rich in glycogen will supply no more ketones than the body can use. Under physiological conditions glucose is used preferentially by the body as a source of energy. Like glucose, the ketone bodies can be utilized as a readily available body fuel by the muscles and all other tissues except the central nervous system. The ketone formed in largest amounts is β-hydroxybutyric acid ($CH_3CHOHCH_2COOH$). Acetoacetic acid (diacetic acid, β-oxybutyric acid, or CH_3COCH_2COOH) results from oxidation of β-hydroxybutyric acid, and acetone (CH_3COCH_3) is produced by the breakdown of acetoacetic acid. Apparently acetoacetate may enter into the tricarboxylic acid cycle, one of the steps through which glucose is converted into energy for muscle contraction.[1]

When the diet is deficient in carbohydrate, ketone substances are formed from the body stores of fat and amino acids appear in the blood in increasing amounts. In the normal adult the minimum limit of glucose utilization below which ketogenesis is likely to occur is roughly 50 to 100 gm. daily. When the total amount of glucose utilized exceeds these limits, ketosis cannot occur unless the total metabolism is increased. To capitulate, when exogenous glucose intake is sufficiently limited in quantity, ketogenesis takes place in the following steps: Inadequate glucose intake leads to inadequate glucose utilization, which leads to increased fatty acid mobilization and then to increased production of β-hydroxybutyric acid, acetoacetic acid, and acetone.

Diabetic Ketosis.—When the production of ketone bodies exceeds the ability of the tissues to oxidize them, as in uncontrolled diabetes, they accumulate in the blood and are excreted by the kidneys into the urine. The accumulation of ketone bodies in the blood is known as ketonemia or ketosis, while their presence in the urine is called ketonuria. These organic ketoacids (ketones) combine with base in tissue fluids to form salt and, most important, deplete the alkali reserve of the body. The loss of base causes a marked reduction in the carbon dioxide combining power of the blood plasma and loss of fluids; the latter further intensifies the acidosis, setting up a vicious cycle. It is obvious that, if ketogenesis is unchecked, more and more base will be lost, resulting in the familiar picture of advanced ketogenic acidosis.

The terms ketosis and acidosis are not synonymous. Ketosis is more descriptive than coma, which suggests unconsciousness, or acidosis, which is in essence a secondary manifestation of the condition. A state of ketosis may develop in either diabetes mellitus or starvation, but acidosis need not be a concomitant. However, the acidosis of diabetes is due invariably to excessive ketogenesis. Mirsky's[2] interpretation of experimental facts appears to indicate that a decrease in liver glycogen is the stimulus for an increase in the production of fatty acids. When the demand for fat exceeds 2.5 gm. per kilogram of body weight per day, the production of ketones exceeds their utilization and, if unchecked, leads to ketosis. Stadie's[3] demonstration that fats are the chief source of ketones lends support to this hypothesis.

Stress Factors.—In normal man and animals trauma and other stresses are often followed by glycosuria and reduced tolerance to glucose. It is well known that sanctity of the person by means of a surgical instrument (a needle) carried out without the patient's consent. Such a procedure would, moreover, be indefensible on moral grounds and would be opposed, not only by the Chaplain's Corps but also by medical and command officers. On the other hand, penicillin administered orally after exposure in a dose of 250,000 units is highly effective in the prophylaxis of gonorrhea, provided the penicillin is taken within one hour of the suspected exposure. There is some degree of protection for as long as 12 hours after exposure. The use of orally given penicillin for the prophylaxis of syphilis is probably ineffective, since repeated doses over a period of several days and to a total of several million units would be necessary.

---

[1] Soskin, S., and Levine, R.: Carbohydrate Metabolism: Correlation of Physiological, Biochemical and Clinical Aspects, Chicago, University of Chicago Press, 1946, p. 53.

[2] Mirsky, I. A.: The Etiology of Diabetic Acidosis, Proc. Am. Diabetes A. 1:51-68, 1941.

[3] Stadie, W. C.: Fat Metabolism in Diabetes Mellitus, Ann. Int. Med. 15:783-797 (Nov.) 1941.

CATARACT

To the Editor:—*In a case of posterior cupuliform cataract (posterior subcapsular or saucer type) if one would do a planned extracapsular extraction, and remove all of the anterior capsule at the time of surgery, would the patient need a capsulotomy later? In other words, does the posterior cupuliform opacity affect the posterior capsule of the lens, making it opaque and necessitating a secondary operation (capsulotomy) or is the opacity truly subcapsular as the name implies?*

M.D., Pennsylvania.

Answer.—The cupuliform cataract involves posterior cortical region, and the posterior capsule is not included. However, since other portions of the lens frequently participate in opacification with cupuliform cataract involvement of the posterior capsule would not be unusual. This type of lens responds nicely to extracapsular extraction and there is surprisingly little cortex. However, there can be no assurance that a subsequent needling will not be required.

SULFONAMIDES AND SODIUM BICARBONATE

To the Editor:—*In* The Journal, *Feb. 26, 1955, in Queries and Minor Notes, page 780, a question on the use of sodium bicarbonate with sulfonamides for systemic administration was answered, and no mention was made of the widely used sulfonamide mixtures such as the sulfapyrimidines (sulfadiazine, sulfamerazine, and sulfamethazine). The answer inferred that only with sulfanilamide and sulfisoxazole is one reasonably sure of freedom from crystalluria without concomitant administration of alkali. The danger of crystallization depends on the amount of sulfonamide administered, in addition to solubility. When combinations of sulfonamides are used, the likelihood of crystallization depends not on the total dosage but on the amount of each single component in the mixture. The evidence for diminished crystalluria with the use of sulfonamide mixtures has been well documented. Lehr* (Proc. Soc. Exper. Biol. & Med. **58:***11, 1945; ibid.* **64:***393, 1947;* J. A. M. A. **139:***398, 1949;* Brit. M. J. **2:***601, 1950) has published experimental and clinical experiences in several reports in the English literature since 1945 and has shown that administration of combined sulfonamides without adjuvant alkalinization has given rise to low incidence of crystalluria. Frisk, Hagerman, and co-workers* (Nord. med. **29:***639, 1946) reported similar results in the Scandinavian literature. Flippin and Reinhold* (Ann. Int. Med. **25:***433, 1946) using mixtures of sulfadiazine and sulfamerazine without adjuvant alkali reported considerably less crystalluria than when single sulfonamides were administered.*

No case of renal obstruction due to these triple sulfonamides has been documented in the literature, despite the fact that multiple sulfonamides have been widely prescribed for years in the United States. It may be that the relatively obsolete sulfonamides, such as sulfanilamide and sulfapyridine, were included in the discussion and sulfonamide mixtures were ignored because the inquiry originated in India, where triple sulfonamides are not widely available. However, the above is submitted to set the record straight for the American and Canadian reader.

Richard A. Carey, M.D.
American Cyanamid Company
30 Rockefeller Plaza
New York 20.

SNAKE BITE

To the Editor:—*In* The Journal *for July 30, 1955, page 1235, an inquirer is given a description of Dr. Stahnke's excellent "L-C" treatment for snake bite. Dr. Stahnke's publication of this technique for patients gives credit to my animal experiments that established the principle. Presumably ethyl chloride is recommended because it might be carried on trips, where ice could not be carried. If ice is obtainable, even before a bucket is found, Dr. Stahnke would probably agree that direct application of ice to the area is best. Incisions may be added in dangerous cases. Besides my experimental publications, I have urged this treatment for snake, spider, scorpion, wasp, or other poisoned wounds (even mosquito bites) in two letters* (J. A. M. A. **139:***616 [Feb. 26] 1949; ibid.* **151:***1156 [March 28] 1953). Two other answers to inquiries* (J. A. M. A. **150:***1549 [Dec. 13] 1952; ibid.* **153:***178 [Sept. 12] 1953) prescribed treatments, omitting refrigeration. This was particularly unfortunate in the recommendation for coral snake bite, which on theoretical grounds should respond excellently to cold, though it is otherwise painful and dangerous.*

Annual deaths from snake bite are estimated at 25,000 to 35,000 for Asia, 3,000 for South America, 300 to 500 for North America including Mexico, smaller numbers for Europe, and large unknown numbers for Africa. Ninety-five per cent of the bites are on limbs. It should be made known that not a single death from these bites is necessary. Assuming that a bite is judged to be fatal, for example, that somebody in a wilderness remote from any therapeutic aid is bitten by the largest bushmaster or king cobra, my experiments showed that it is always possible to save life at the cost of a limb by promptly applying a tight permanent tourniquet. Amputation can then be deferred for a day or two if necessary. Such a tourniquet is very painful for several hours, but so is the snake bite. A tight tourniquet should never be applied without refrigeration unless the limb is to be sacrificed. With refrigeration, Dr. Stahnke wisely limits the tourniquet to five minutes, then the refrigeration alone is continued for a selected number of hours.

Frederick M. Allen, M.D.
1031 Fifth Ave.
New York 28.

To the Editor:—*Having seen the answer to a question on snake bite in* The Journal, *July 30, 1955, page 1235, I am prompted to offer a few comments. The L-C method proposed by Herbert L. Stahnke, Ph.D., professor of zoology and director of the poisonous animals research laboratory, Arizona State College, was ably discussed by Dr. Frederick Shannon at the first International Conference on Venoms, in Berkeley, Calif., in December, 1954. His paper, with the others read at the conference, is now in press, to be published in a symposium volume under the title "Venoms." His findings were in agreement with the brief description given in the answer.*

Although it is true, as stated by your consultant, that "tourniquet, multiple incision, and suction technique following the head of swelling is still the local treatment of choice" in Crotalus envenomization, he neglected to mention the importance of neutralizing the venom received in the bite with specific serum. Especially in severe envenomization by crotaline species, when it is impossible to remove sufficient venom by purely mechanical measures, is it imperative to administer an adequate dose of antivenin at the earliest moment. As pointed out by other contributors to the conference, the venoms of crotalids break down the blood vessels; thus permeation of the body by the serum may be impeded if specific treatment is delayed. Incisions on a digit are laways contraindicated, since, as emphasized by Dr. Shannon, the trauma of a knife blade increases tissue damage and may be responsible for ultimate gangrene, necessitating amputation.

Mahlon Z. Bierly Jr., M.D.
Wyeth Laboratories
1401 Walnut St.
Philadelphia 2.

THE JOURNAL

of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 159. NO. 9 CHICAGO, ILLINOIS OCTOBER 29, 1955

COPYRIGHT, 1955, BY AMERICAN MEDICAL ASSOCIATION

MANAGEMENT OF DIABETES MELLITUS DURING KETOACIDOSIS, ACUTE INFECTION, AND SURGERY

Joseph I. Goodman, M.D., Cleveland

The three commonest acute complications in diabetic patients are ketogenic acidosis, acute infection, and surgical or traumatic events. It will be shown in this paper that the underlying pathological physiology is the same regardless of which condition prevails. With this concept in mind, the management of these diabetic complications is greatly simplified. A regimen is presented that is based on the physiological mechanism of ketogenesis and applicable to any of these complications.

CAUSES OF DIABETIC ACIDOSIS AND COMA

Mechanism of Ketogenesis.—Results of experimental studies during the past decade have altered the concept of ketone formation, and ketones are no longer considered abnormal metabolites. The evidence favors the theory that ketones are normal end-products of fat catabolism and are made in significant quantities solely in the liver whence they are distributed to the blood. A liver rich in glycogen will supply no more ketones than the body can use. Under physiological conditions glucose is used preferentially by the body as a source of energy. Like glucose, the ketone bodies can be utilized as a readily available body fuel by the muscles and all other tissues except the central nervous system. The ketone formed in largest amounts is β-hydroxybutyric acid ($CH_3CHOHCH_2COOH$). Acetoacetic acid (diacetic acid, β-oxybutyric acid, or CH_3COCH_2COOH) results from oxidation of β-hydroxybutyric acid, and acetone (CH_3COCH_3) is produced by the breakdown of acetoacetic acid. Apparently acetoacetate may enter into the tricarboxylic acid cycle, one of the steps through which glucose is converted into energy for muscle contraction.[1]

When the diet is deficient in carbohydrate, ketone substances are formed from the body stores of fat and amino acids appear in the blood in increasing amounts. In the normal adult the minimum limit of glucose utilization below which ketogenesis is likely to occur is roughly 50 to 100 gm. daily. When the total amount of glucose utilized exceeds these limits, ketosis cannot occur unless the total metabolism is increased. To capitulate, when exogenous glucose intake is sufficiently limited in quantity, ketogenesis takes place in the following steps: Inadequate glucose intake leads to inadequate glucose utilization, which leads to increased fatty acid mobilization and then to increased production of β-hydroxybutyric acid, acetoacetic acid, and acetone.

Diabetic Ketosis.—When the production of ketone bodies exceeds the ability of the tissues to oxidize them, as in uncontrolled diabetes, they accumulate in the blood and are excreted by the kidneys into the urine. The accumulation of ketone bodies in the blood is known as ketonemia or ketosis, while their presence in the urine is called ketonuria. These organic ketoacids (ketones) combine with base in tissue fluids to form salt and, most important, deplete the alkali reserve of the body. The loss of base causes a marked reduction in the carbon dioxide combining power of the blood plasma and loss of fluids; the latter further intensifies the acidosis, setting up a vicious cycle. It is obvious that, if ketogenesis is unchecked, more and more base will be lost, resulting in the familiar picture of advanced ketogenic acidosis.

The terms ketosis and acidosis are not synonymous. Ketosis is more descriptive than coma, which suggests unconsciousness, or acidosis, which is in essence a secondary manifestation of the condition. A state of ketosis may develop in either diabetes mellitus or starvation, but acidosis need not be a concomitant. However, the acidosis of diabetes is due invariably to excessive ketogenesis. Mirsky's [2] interpretation of experimental facts appears to indicate that a decrease in liver glycogen is the stimulus for an increase in the production of fatty acids. When the demand for fat exceeds 2.5 gm. per kilogram of body weight per day, the production of ketones exceeds their utilization and, if unchecked, leads to ketosis. Stadie's [3] demonstration that fats are the chief source of ketones lends support to this hypothesis.

Stress Factors.—In normal man and animals trauma and other stresses are often followed by glycosuria and reduced tolerance to glucose. It is well known that physical stresses likewise increase the hyperglycemia of persons with diabetes mellitus.[4] It has been suggested that the "aggravation of diabetes" with infections, fractures, and other types of stress is due to increased adrenal activity and consequent overproduction of glucocorticoids.[5]

---

[1] Soskin, S., and Levine, R.: Carbohydrate Metabolism: Correlation of Physiological, Biochemical and Clinical Aspects, Chicago, University of Chicago Press, 1946, p. 53.

[2] Mirsky, I. A.: The Etiology of Diabetic Acidosis, Proc. Am. Diabetes A. 1: 51-68, 1941.

[3] Stadie, W. C.: Fat Metabolism in Diabetes Mellitus, Ann. Int. Med. 15: 783-797 (Nov.) 1941.

Clinicians have long noted, and the viewpoint is still expressed, (1) that "breaking of diet" and the ingestion of large quantities of carbohydrate may induce ketosis, and (2) that persons with diabetes often are admitted to the hospital in coma after an "eating spree." Mirsky, Franzblau, and co-workers [6] and others [7] have demonstrated conclusively that patients do not develop ketosis merely because of dietary indiscretions. It appears, therefore, that simple ingestion of food cannot cause ketosis, that diabetic persons do not "eat themselves into coma," but that rather, when subjected to stress, they respond with ketonemia, diuresis, and an increased ingestion of food.[8]

In extended clinical studies in diabetics Hinkle and associates [8] have observed repeatedly that cases of ketosis and coma show not only an intimate temporal correlation with significant events in the lives of the patient but also changes in carbohydrate tolerance. In adolescents instances of ketosis have been seen to develop within a relatively few hours after a severe conflict, quite in the absence of infections or of significant changes in the diet or insulin intake. Dolger observed an adolescent girl on a hospital ward who, in a conflict situation, developed severe ketosis within six hours requiring over 400 units of insulin for its treatment.

Precipitating Causes of Diabetic Ketogenesis.—The direct precipitating cause of diabetic ketogenesis is loss of appetite. The diabetic is not immune to conditions that cause nausea and vomiting such as gastrointestinal upsets, appendicitis, and acute infections, especially renal infections. Because prolonged vomiting often results in ketogenesis, potentially any of these conditions can precipitate coma. Essentially this is a form of starvation ketosis. One is forced to conclude that vomiting is an evil omen in diabetes and unless heeded may lead to death.[9] It is remarkable how frequently the uneducated, unprepared diabetic patient, unable to take food during an acute complication because of anorexia, omits his insulin. In the later stages of ketosis, after symptoms begin, the danger is vastly increased and treatment is much more difficult. In short, the anorexic diabetic patient is a potential emergency at all times, but when vomiting is associated with some other disorder, such as an upper respiratory tract infection or a gastrointestinal upset, a serious emergency exists.

Treatment of Ketosis.—Preventive therapy will obviate the necessity of treating severe ketosis. Prevention begins with well-educated diabetic patients being schooled particularly against the fallacy of stopping food and insulin when they feel ill, have a fever, or lose their appetite. The patient should know that in the anorexic phase of infection insulin must not be omitted and food intake should not be materially reduced. Adequately trained diabetic patients will always regard loss of appetite, with or without nausea, as a danger signal concerning the correction of which their physician should be consulted immediately.

In active treatment of diabetic ketosis the pathological physiology should be borne in mind and measures designed to reverse these mechanisms instituted promptly and pursued vigorously. Once ketogenesis becomes excessive, the chief principle of therapy, and the most effective way of suppressing it, is the encouragement of glycogenesis. As long as glycogen is available, the need for fatty acids is reduced and excessive ketogenesis is unlikely. How does one induce glycogen deposition in the liver and thus reduce the stimulus for ketogenesis? In starvation the mere ingestion of food, principally carbohydrate, will arrest excessive ketogenesis. Carbohydrate will also retard ketone formation in diabetes mellitus. Insulin prevents the glycogen so stored from being dissipated rapidly. Mirsky [10] has shown a drop in the ketone concentration of the blood and urine in dogs whose pancreas glands have been removed after the administration of glucose by vein; excessive quantities of carbohydrate fed to a diabetic patient also decreased ketone formation. Root and Carpenter [11] reported a drop in the blood ketones from 70 to 44 mg. per 100 cc. in a diabetic patient three hours after 50 gm. of glucose was given intravenously. Mattar [12] studied the effects of glucose administration on ketosis in three diabetic patients. During the five day observation period the blood ketones were lowered in each patient, the actual fall being from 28 to 17, 36 to 19, and 41 to 25 mg. per 100 cc. respectively. If vomiting persists, 5 or 10% glucose solution should be given continuously intravenously until the patient is able to retain food for several hours by the oral route.

MANAGEMENT DURING ACUTE COMPLICATIONS

All the acute complications of diabetes—ketogenic acidosis, acute infection, surgical procedures, or traumatic events—can be treated by the same method, the exact treatment varying only in detail. Tolstoi permits unrestricted glycosuria providing there is no acetonuria. Some authors give the entire daily insulin requirement preoperatively, others give only a portion, and Barach gives none except postoperatively. Shapiro gives protamine zinc insulin whereas Duncan and others suggested equally divided feedings and regular insulin, as in the following regimen.

---

[4] Hinkle, L. E., Jr., and Wolf, S.: Importance of Life Stress in Course and Management of Diabetes Mellitus, J. A. M. A. **148:** 513-520 (Feb. 16) 1952.

[5] Shipley, R. A.; Dorfman, R. I.; Buchwald, E., and Ross, E.: Effect of Infection and Trauma on Excretion of Urinary Cortin, J. Clin. Invest. **25:** 673-678 (Sept.) 1946.

[6] Mirsky, I. A.; Franzblau, A. N.; Nelson, N., and Nelson, W. E.: The Role of Excessive Carbohydrate Intake in the Etiology of Diabetic Coma, J. Clin. Endocrinol. **1:** 307-313 (April) 1941.

[7] Koehler, A. E., and Hill, E.: Overnutrition and Diabetic Coma, Proc. Am. Diabetes A. **6:** 425-431, 1946.

[8] Hinkle, L. E., Jr.; Edwards, C. J., and Wolf, S.: Studies in Diabetes Mellitus: II. The Occurrence of a Diuresis in Diabetic Persons Exposed to Stressful Life Situations, with Experimental Observations on Its Relation to the Concentration of Glucose in Blood and Urine, J. Clin. Invest. **30:** 818-837 (Aug.) 1951.

[9] Joslin, E. P.; Root, H. F.; White, P., and Marble, A.: Treatment of Diabetes Mellitus, ed. 9, Philadelphia, Lea & Febiger, 1952, p. 351.

[10] Mirsky, I. A.; Heiman, J. D., and Broh-Kahn, R. H.: The Antiketogenic Action of Glucose in the Absence of Insulin, Am. J. Physiol. **118:** 290-296 (Feb.) 1937.

[11] Root, H. F., and Carpenter, T. M.: The Effect of Glucose Administration in Diabetic Acidosis, Am. J. M. Sc. **206:** 234-243 (Aug.) 1943.

[12] Mattar, E.: Physiopathological, Clinical, and Therapeutic Aspects of Diabetic Coma, Arq. clín. **11:** 59-119 (Aug.); **11:** 153-210 (Sept.-Oct.) 1950; abstracted, Diabetic Abstr. **10:** 132 (July) 1951.

The program that has received the most widespread adoption was devised by Woodyatt shortly after the discovery of insulin and has been used by many of his adherents. The method utilizes equally divided feedings and multiple doses of regular insulin. Each day is divided into four six-hour periods. An injection of unmodified insulin is given at the beginning of each period. An oral or parenteral feeding, equal in glucose value to that given in each of the other periods, is given at the beginning of or during the period. Duncan recommends a daily diet that contains 115 gm. of protein, 250 gm. of carbohydrate, and enough fat to bring the calorie total to 30 to 35 calories per kilogram of body weight; the diet is divided so that the caloric intake for each period is equal. The diet can be served also in soft or liquid form. When a patient is unable to retain feedings by mouth or tube, an intravenous program patterned on the six hour schedule outlined above is used. Administration of a new bottle of glucose is started every six hours and insulin injected subcutaneously as each bottle is begun.

In very rare instances, where several hundred units of insulin are given in each 24 hours, the diet is divided into six equal meals given every four hours. The insulin dosage is determined by urinalysis as in the four-meal program. A urine specimen is collected after each six hour period and tested for sugar and acetone, the result determining the next insulin dose. The insulin dose should be sufficient to prevent acetonuria. Insulin given more frequently tends to overlap to the extent that the effect of any given dose is difficult to judge. If given at much longer intervals, the effect fails to overlap at all and control is lost quickly. The proponents of this method believe that control is maintained more easily with regular insulin than with modified insulin.

Prevention and Treatment of Ketoacidosis.—A person with severe diabetes must, without exception, be maintained under the continuous effect of insulin. This can be accomplished only when his daily insulin is taken regularly. It is absolutely essential that the usual insulin dose is not discontinued during periods of abnormal stress such as a gastrointestinal upset, or any other disturbance that impairs ingestion of food. It is my policy to continue the patient's usual insulin dosage, unaltered in any manner, throughout the entire course of all illnesses (infection, surgery).

Ketonuria is a sufficiently accurate guide to therapy and can be easily evaluated at the bedside. Tests made every two or three hours usually show the trend of the ketonuria, but one can examine every specimen of urine voided. Blood sugar analysis is not very helpful in the management of ketoacidosis, since the results are not available rapidly enough to be of aid. Besides, when glucose is being given intravenously, blood sugar values are useless and may be misleading while intravenous glucose is being given. Glucose therapy would be a definite hindrance if the treatment of ketoacidosis and coma were based on the blood sugar determinations. However, one must not permit the true aim of therapy, namely, arrest of ketogenesis and not lowering of the blood sugar level, to be obscured by all the arguments pro and con the use of glucose.

Illness That Prevents Oral Feeding: Evidence has been cited to prove that carbohydrate is the best antidote for the suppression of ketogenesis. This is the goal in the treatment of ketoacidosis in my patients. If the patient is able to eat, frequent small carbohydrate feedings are ordered every one to two hours throughout the 24 hour period. For those who are vomiting, or unable to take food by mouth, 5 to 10% glucose in water is administered continuously by vein and maintained until it is clearly shown that the patient is able to retain food orally. If oral feedings cannot be retained by a diabetic patient because of vomiting, or for any reason, then parenteral administration of 5 or 10% glucose solution, subcutaneously or intravenously, should be maintained continuously. Nine grams of salt is the normal requirement in each 24 hours, but the need is several times this amount during ketoacidosis and may be supplied by isotonic sodium chloride solution. The total amount of fluid administration should be adequate to maintain the urine volume above 1,000 cc.

Feedings.—Diabetic patients should not be permitted to go without food for more than a few hours. In emergency situations the diet should be planned in principle primarily to thwart starvation ketosis. Feedings may be given in small meals, soft or liquid, by hypodermoclysis or venoclysis, whichever method is indicated at the time. A menu comprised of carbohydrate in the form of oatmeal or other cereals, fruit juices, well-cooked or pureed vegetables, protein such as eggs, fish, and chicken, and fat in the form of cream will tide a patient over many emergencies. The feedings should be taken every one to two hours day and night. The normal diet should be put into effect just as soon as his condition permits.

Absolute aglycosuria is not necessary, or indeed wholly desirable, during the short period of acute infections since recovery may begin at any time. Joslin's views [9] on this point cannot be overemphasized, viz., that an overvigorous attempt should not be made to get the patient sugar-free during infections and either before or after operation. Where hypoglycemia imposes a serious risk, as in myocardial infarction, glycosuria need not be an indication for increased insulin dosage.

SOME CONSIDERATIONS OF ACUTE INFECTIONS IN DIABETES

The explanation of the unfavorable effect of infections on diabetes is not known, but those causing fever and leukocytosis appear to disturb carbohydrate metabolism most markedly. Williams and Dick found glycosuria in 41% of nondiabetic patients with acute infectious diseases, the largest average amounts occurring with influenza. Labbé [13] demonstrated a lowered carbohydrate tolerance in pneumonia, and MacLean and Sullivan [14] in encephalitis, tuberculosis, meningitis, and measles. The behavior of the diabetes, favorable and unfavorable, is frequently a reliable index of the trend of an infectious process.

Duncan suggests that lowered carbohydrate tolerance during infections, either in the diabetic or the nondiabetic, theoretically might be due to one of four causes:

---

13. Labbé, M., and Boulin, R.: Disturbances of Glucose Regulation During Infections, Bull. et mém. Soc. Med. hôp. Paris 49: 1358-1368 (Oct. 30) 1925.

14. MacLean, A. B., and Sullivan, R. C.: Dextrose Tolerance in Infants and in Young Children, Am. J. Dis. Child. 37: 1146-1160 (June) 1929.

(1) lessened production of endogenous insulin; (2) increased production of hormonal antagonists; (3) destruction of insulin; or (4) interference with the storage and utilization of glycogen. Of these, it seems to me that the excess production of the adrenal ketosteroid is the most likely mechanism during acute infection.

Diarrhea.—Diarrhea in diabetic patients is a serious, distressing complication, particularly when accompanied by vomiting. With abstinence from food, patients with diarrhea often reason erroneously that they should not take any insulin. Since gluconeogenesis and ketogenesis are necessarily increased under conditions of starvation or semistarvation, a predisposition to ketoacidosis, further accentuated by fluid and electrolyte loss, is understandable. Therefore, diarrhea, as well as vomiting, must be regarded seriously in a diabetic.

PRINCIPLES OF SURGICAL MANAGEMENT OF DIABETIC PATIENTS

Since the control of the diabetes may prove to be the most important factor in the total management of the surgical diabetic patient, both the preoperative and postoperative treatment should be carried out on the medical wards. At the Pennsylvania Hospital, for example, a diabetic team consisting of two senior members of the medical staff and one resident physician assumes full responsibility for the management of the diabetes regardless of which service is primarily in charge of the patient. Patients are visited by the resident member at least once daily and at least four times weekly by senior members of the team. All orders for diet, insulin, and other measures pertaining to the diabetes are written by a team member.

There are two main objectives in the medical management of the surgical diabetic: (1) to avoid ketosis and (2) to avoid hypoglycemic reactions. A diabetic can be considered sufficiently controlled to support surgical measures and to have a normal chance of recovery in the absence of ketonuria. Transient glycosuria is a regular occurrence after operation; ketonuria is more serious. More than at any other time it is important to aim for rich glycogen stores in the liver. The patient should go to the operating room well fed, with his liver stocked with glycogen.

Preoperative Preparation.—As the day of operation approaches, the problem of regulating the diabetes immediately before and after surgery presents itself. If there is no need for haste and the diabetes is already under control, no deviation from the former treatment is necessary except to be certain that the patient is fed to within three hours of operation.

Diet: The preoperative diet for the elective surgical patient is in most cases his usual diabetic diet, altered as little as possible, given in three equal meals with a bedtime nourishment containing 10 to 15 gm. of carbohydrate, e. g., a cup of milk and three graham crackers or one slice of bread and butter.

Insulin: Insulin administration preferably should be based on the previously determined requirements of the individual patient. It is advisable to schedule the operation early in the morning so that a long fasting period will be avoided. If the stomach must be empty during the operation, intravenous administration of glucose is started preoperatively. On the morning of surgery I give the entire usual morning dose of insulin (whether regular, intermediate, or long-acting) subcutaneously along with the glucose intravenously.

Postoperative Management.—The postoperative regimen is planned to avoid dehydration and ketogenesis. For this purpose a minimum of 100 to 150 gm. of carbohydrate daily is necessary, any amount not taken by mouth being supplied by parenteral administration in the form of 5 or 10% dextrose solution by vein or 2.5% dextrose in water under the skin. During phases when oral feeding is not allowed, or when the patient is unable to retain fluids, glucose solution, 5 or 10%, should be given intravenously. The protein needs may be satisfied by the administration of amino acids in the same manner, but this is not a critical factor insofar as ketogenesis is concerned. Glucose solutions, administered parenterally, are at best poor substitutes for feedings that the patient cannot take orally.

Perhaps one of the commonest sources of error in the parenteral administration of glucose lies in the assumption that a specific amount of glucose is metabolized by a specific number of units of insulin. In other words, it is assumed that the glucose given intravenously can be "covered" with a standard dose of insulin. In my opinion it is unnecessary and dangerous to attempt to utilize the glucose given intravenously by a calculated dose of insulin. It is even more dangerous to give insulin for the glucose that usually spills over into the urine after an intravenous injection. This is apt to cause hypoglycemia. No serious attempt should be made therefore to render the urine sugar-free postoperatively. The important thing is to render the urine free from ketones.

Tests.—Fractional urine specimens (8 a. m. to 12 noon, 12 noon to 4 p. m., 4 p. m. to 8 p. m., 8 p. m. to midnight, midnight to 4 a. m., and 4 a. m. to 8 a. m.) are tested for acetone and sugar immediately upon the completion of each fraction.

Diet.—In general, the patient should be given a liquid or soft diet as soon as possible after operation. In most cases feeding can begin within four to six hours. Patients having a limb or part of a limb amputated may need no intravenous therapy, and they may sit up six hours after the surgical procedure is terminated. There is no reason for them to miss a meal. Liquid carbohydrate feedings, thin milk, orange juice, ginger ale, and oatmeal water gruel may be instituted three hours after operation and administered freely during the first 24 hours. Except when the nature of the operation necessitates special dietary regulations, liquids such as oatmeal made with water, hot tea, or coffee (with crackers or toast) can be given freely, and ginger ale and orange juice with egg white sparingly on the first postoperative day. As soon as liquids are tolerated by mouth, the equivalent of the former diet is provided. For the first day this diet can be divided into six equal feedings, one being given every four hours.

On the second postoperative day milk and, if the patient desires, cooked cereals, junket, or boiled custard is added to the diet. Finally, when convalescence is well under way—usually in three or four days after operation—the diet employed before the complication is resumed.

Anesthesia.—The less toxic the anesthetic agent, the less it interferes with the patient's dietary routine. Spinal anesthesia with dibucaine (Percaine), heavy solution, is ideal for diabetics and should always be used for amputations and similar operations, as it permits the operation to be performed with a minimum of change in the established preoperative routine. Refrigeration anesthesia has similar advantages but the method is cumbersome. Local anesthesia is also of value in diabetes. Coppleson [15] classifies thiopental (Pentothal) sodium as the most satisfactory general anesthetic agent for use in diabetes and cyclopropane as probably the safest gaseous anesthetic.

Summary of Surgical Management.—This plan of preoperative and postoperative management of the diabetic patient is physiological and has the advantages of simplicity (by the prescription of the patient's regular insulin dose); safety (the feeding schedule and the administration of glucose intravenously is designed to prevent hypoglycemia and ketosis); and convenience (no disruption of medical or nursing service is involved).

COMMENT

The normal ketone level in the blood is rarely in excess of 1 mg. per 100 cc., and the normal urinary excretion is usually less than 500 mg. in 24 hours. In diabetic ketoacidosis, blood ketone levels as high as 368 mg. per 100 cc. and 75 gm. in 24 hour urine specimens have been reported. Koehler, Windsor, and Hill [16] have shown in diabetic subjects that the rate of utilization is such that no ketones accumulate unless fat combustion exceeds approximately 1,650 calories for 24 hours. This means that ketosis is avoided whenever enough carbohydrate is burned so as not to place a demand on fat oxidation for energy to exceed 1,650 calories a day. This concept would seem to eliminate overnutrition as a cause of diabetic coma and substitute undernutrition, that is carbohydrate deficiency, as the real and only dietary cause.[7] When the hepatic glycogen reserve is insufficient to satisfy the full energy requirements, ketosis with its many deleterious accompaniments develops.[10] When diabetic patients undergo formidable operations, glycogenolysis and the difficulties of postoperative alimentation severely drain the previously attained glycogen reserve.

Increased adrenal weight occurs within 6 to 24 hours after the application of a wide variety of stress states and corticotropin administration. Untreated diabetes, especially when associated with ketosis, produces a severe prolonged stimulation of the adrenal cortex sometimes amounting almost to exhaustion. Trauma in nondiabetic man and animals is often followed by glycosuria and reduced glucose tolerance. Moreover, trauma, infections, and other stresses can aggravate a diabetic state.[17] The hyperglycemic reaction to trauma fails to occur in the absence of the adrenals, but a fixed daily dose of adrenal cortical extract, which by itself does not elevate the blood sugar of nontraumatized rats, restores the hyperglycemia of trauma in animals whose adrenals have been removed. The inference from these observations would seem to be that the aggravation of diabetes is due to hyperactivity of the adrenal cortex with consequent overproduction of carbohydrate-active corticosteroids. Similarly, animals without adrenals maintained with a constant daily dose of adrenal cortical extract, which by itself did not cause an increase in nitrogen excretion, exhibited as great an increase in urinary nitrogen excretion after fracture as did normal animals.[18] These observations indicate that the adrenal plays a supportive rather than a causal role in the hyperglycemia, decreased glucose tolerance, and increased nitrogen excretion of stress. Therefore, even though diabetic ketosis is associated with an increased adrenocortical activity, it does not necessarily follow that the aggravation of diabetes that occurs during ketosis is due to adrenal overactivity. Be that as it may, from a nutritional or dietary aspect, the only requirement to avoid ketosis is to have adequate carbohydrate available. It would, therefore, seem rational to supply additional glucose as near as possible to the critical period of glycogen breakdown, ideally, during the operation itself.

Green and his associates studied the relation of delayed healing of clean and infected wounds to the height of the blood sugar level and degree of glycosuria in an impressive number of patients. Even those diabetic patients who revealed considerable postoperative hyperglycemia and glycosuria made uneventful recoveries after a variety of major procedures. Greene's observations [19] demonstrate clearly that postoperative glycosuria does not retard wound healing and, as there was no evidence of infection, the obvious deduction would be that hyperglycemia and glycosuria are not conducive to infection.

SUMMARY AND CONCLUSIONS

The rapidity of onset and the degree of ketosis reached during fasting bears an inverse relation to the protein content of the preceding diet. Apparently ketosis is related to the protein intake preceding the fasting period. The latter serves as a source of antiketogenic material and determines the amount of "stored" protein available for catabolism during fasting. Fasting rats, previously on a high protein intake, maintain their liver glycogen and blood sugar levels better and have a lower level of blood ketone bodies as well. The insulin resistance and higher blood sugar levels during ketosis are probably related to increased adrenocortical activity and consequent overproduction of 11, 17-oxysteroids.

The treatment outlined has been used with excellent results in postoperative diabetics and during acute infections as well. Alimentation with glucose parenterally is advocated during major operations to protect the preoperatively attained glycogen reserve. Finally, it should be pointed out that, when this method of giving glucose covered by insulin and not insulin covered by glucose is used, not only are blood sugar estimations unnecessary but their significance is somewhat questionable.

2460 Fairmount Blvd. (6).

---

15. Coppleson, V. M.: The Principles of the Surgical Management of Diabetic Patients, Bull. Post-Grad. Comm. Med., Univ. Sydney **2:** 244-246 (Dec.) 1946.

16. Koehler, A. E.; Windsor, E., and Hill, E.: Acetone and Acetoacetic Acid Studies in Man, J. Biol. Chem. **140:** 811-825 (Sept.) 1941.

17. Hinkle and Wolf.[4] Hinkle and others.[8]

18. Ingle, D. J.; Ward, E. O., and Kuizenga, M. H.: Relationship of Adrenal Glands to Changes in Urinary Non-Protein Nitrogen Following Multiple Fractures in Force-Fed Rat, Am. J. Physiol. **149:** 510-515 (May) 1947.

19. Greene, J. A.; Swanson, L. W., and Jacobs, C. A.: Control of Diabetes Mellitus: Relation to Healing of Clean and Infected Wounds and to Incidence of Infection in Clean Wound, J. A. M. A. **115:** 1518-1520 (Nov. 2) 1940.

DEPRESSION AND ANXIETY OCCURRING DURING RAUWOLFIA THERAPY

John C. Muller, M.D., William W. Pryor, M.D., James E. Gibbons, M.D.
and
Edward S. Orgain, M.D., Durham, N. C.

During recent years extracts of Rauwolfia serpentina have been utilized freely in the treatment of hypertensive vascular disease and varied psychiatric illnesses. Initial preparations for clinical investigation were provided only in crude form; but a highly purified alkaloid, reserpine, is now available. In general, the pharmacological properties of the crude and the purified derivatives are essentially the same.[1] These compounds are considered to be free of serious toxic reactions.[2] Mild side-effects frequently encountered are nasal stuffiness, decreased initiative, fatigue, weight gain, drowsiness, nightmares, and diarrhea. These symptoms usually can be relieved by reducing the dosage of the drug without appreciably sacrificing its hypotensive effect.[3] In some patients receiving Rauwolfia preparations in large doses, depression may develop.[4] Although this complication occurs with significant frequency, it has received comparatively little emphasis in the literature. The purpose of this paper is to report the cases of 7 patients (of a group of 93) who became mentally ill while taking Rauwolfia compounds, to emphasize the potential severity of the complication, and to evaluate possible factors involved in its genesis.

Initially all patients were treated with a crude root preparation of Rauwolfia, Raudixin. Subsequently Raudixin therapy was discontinued, and all patients were given the purified alkaloid, reserpine. These compounds were administered in ascending doses until satisfactory control of blood pressure was obtained or unpleasant reactions prevented additional increase of the drug. When control of blood pressure was not satisfactory, an additional hypotensive agent, either protoveratrine or pentolinium tartrate (Ansolysen), was administered in combination. Twenty-eight patients received Raudixin from 2 to 12 months (average 6 months) in doses varying from 100 to 700 mg. per day (average 336 mg.). Two (7%) patients became mentally ill; both received 400 mg. of Raudixin for periods of three and four months respectively. Sixty-five patients took reserpine from 2 to 10 months (average 5 months) in doses varying from 0.6 mg. to 4 mg. (average 1.5 mg.) per day. Five (7.7%) patients became mentally ill during the administration of 1.2 to 4 mg. (average 2.2 mg.) per day for periods varying from three to six months (average 4.4 months). Minor symptoms were observed in 86 patients similar to those described by previous investigators.[5]

In seven patients who developed serious mental difficulties, symptoms observed were insomnia (seven), fatigue and lassitude (six), inability to concentrate or work (five), anxiety and apprehension (five), crying episodes (four), drowsiness (four), feelings of futility and despondency (three), loss of previous interest (two), guilt feelings (two), self-accusation and self-depreciation (two), desire to withdraw from people (two), multiple physical complaints (two), suicidal thoughts (two), constipation (one), nervous uncomfortable feeling in stomach (one), loss of libido (one), and forgetfulness (one). All seven patients were hospitalized for periods of 10 to 30 days. The psychiatric diagnoses were anxiety depression, three patients; predominant depression with little anxiety, two patients; and anxiety state, two patients. Four patients improved initially on a simple regimen of rest, reassurance, encouragement, and drugs given to produce relaxation and sedation. Of these, two relapsed and received electric shock therapy with good results. The mental status in the remaining two patients has continued to improve after periods of four and seven months, even though one patient has developed malignant hypertension. Three patients failed to respond to psychotherapy in the form of ventilation and reassurance but improved promptly after electric shock therapy. Of these three patients, one has maintained improvement for 5 months; another patient with marked mental improvement for 5 months has retained her lifelong multiple organ system complaints and symptoms suggesting hyperventilation syndrome; and the remaining patient required additional electric shock therapy one year after initial treatment but continues to have feelings of anxiety and depression 15 months after the onset of his acute illness. The following case reports are included to illustrate briefly the psychiatric symptoms and clinical course of seven patients.

REPORT OF CASES

CASE 1.—A 49-year-old man was originally seen at Duke Hospital in May, 1953, with asymptomatic hypertension of six years' duration. He had enjoyed good health despite symptoms of anxiety for many years. Physical examination revealed blood pressure of 170 to 200/100 to 110 mm. Hg, grade 2 retinal changes, and moderate cardiac enlargement. After initial clinical evaluation, Raudixin therapy, 400 mg. a day, was begun. Blood pressure was controlled at normal levels until August, 1953, when medication was discontinued by the patient because of

---

From the Department of Medicine, Duke University School of Medicine and the Cardiovascular Service, Duke Hospital.

The crude root preparation of Rauwolfia serpentina used in this study was supplied under the name Raudixin by E. R. Squibb & Sons, New York. The reserpine was supplied under the name Serpasil by Ciba Pharmaceutical Products, Inc., Summit, N. J., and under the name Serpine by the Pitman-Moore Company, Indianapolis.

Dr. Hans Lowenbach, Department of Psychiatry, Duke University School of Medicine, did psychiatric evaluations of patients for this study.

1. Wilkins, R. W.: Clinical Usage of Rauwolfia Alkaloids, Including Reserpine (Serpasil), Ann. New York Acad. Sc. **59**: 36-44 (April) 1954.

2. Finnerty, F. A., Jr.: The Value of Rauwolfia Serpentina in the Hypertensive Patient, Am. J. Med. **17**: 629-640 (Nov.) 1954. Moyer, J. H.: Cardiovascular and Renal Hemodynamic Response to Reserpine (Serpasil), and Clinical Results of Using This Agent for the Treatment of Hypertension, Ann. New York Acad. Sc. **59**: 82-94 (April) 1954. Wilkins.[1]

3. Doyle, A. E.; McQueen, E. G., and Smirk, F. H.: Treatment of Hypertension with Reserpine, with Reserpine in Combination with Pentapyrrolidinium, and with Reserpine in Combination with Veratrum Alkaloids, Circulation **11**: 170-181 (Feb.) 1955.

4. (*a*) Freis, E. D.: Mental Depression in Hypertensive Patients Treated for Long Periods with Large Doses of Reserpine, New England J. Med. **251**: 1006-1008 (Dec. 16) 1954. (*b*) Wilkins.[1] (*c*) Doyle and others.[3]

5. Wilkins.[1] Doyle and others.[3]

the rapid development of lassitude, fatigability, insomnia, feelings of futility and hopelessness, a desire to withdraw from people, and suicidal thoughts. When he was seen at Duke Hospital two weeks after the onset of symptoms, a diagnosis was made of acute depressive reaction, possibly related to Raudixin. A history was obtained of previous short periods of mild depression. Electric shock therapy was administered at another hospital with good results, and he was not seen at Duke Hospital again until April, 1954. During the interim, periods of mild depression persisted, but therapy with Raudixin in a lower dosage of 100 mg. daily had been continued. In October, 1954, a more severe exacerbation of depression developed, and he again responded to electric shock therapy. When last heard from in January, 1955, he was feeling better, but periods of nervousness and depression continued to occur.

CASE 2.—A 42-year-old woman had had asymptomatic hypertension for 15 years and was hospitalized at Duke Hospital first in 1952 after a cerebral vascular accident with hemiplegia. Recovery from the hemiplegia was almost complete, and blood pressure was controlled satisfactorily by therapy with hexamethonium chloride and hydralazine. However, administration of these drugs was discontinued in September, 1953, after the development of arthritis as a complication of hydralazine therapy. Raudixin therapy, 400 mg. a day, was then started. Shortly afterwards, drowsiness, fatigue, lassitude, and loss of energy developed. In November, 1953, administration of Raudixin was reduced to 300 mg. a day with temporary improvement. In January, 1954, the development of nervousness; anxiety and agitation; insomnia; crying spells; burning pains in her chest; pressure in her head; and inability to concentrate, to make decisions, and to work resulted in the patient's hospitalization at Duke Hospital. A diagnosis of anxiety state was made. It is of interest that the patient had had a previous nervous breakdown at age 30 necessitating care in a sanitarium. Superficial psychotherapy combined with relaxation therapy resulted in marked improvement after two weeks. After returning home, therapy with reserpine was started by her personal physician and symptoms recurred. After several months she was hospitalized at another hospital where a diagnosis was made of personality trait disturbance of long standing verging into depression with anxiety. Reserpine therapy was discontinued, and electric shock therapy administered in December, 1954, resulted in less agitation. Reserpine therapy was reinstituted prior to discharge from the hospital but was discontinued by her personal physician after she returned home. Progressive improvement then occurred with restored abilities to perform household duties and to drive her car. When last seen at Duke Hospital in May, 1955, improvement in her condition was obvious. Previous anxiety symptoms had disappeared and 15 lb. (6.8 kg.) of weight had been gained. However, partial amnesia for details of her previous illness and mild impairment of concentration were evident.

CASE 3.—A 28-year-old woman was first seen at Duke Hospital in April, 1954, with a known history of hypertension of four years' duration. Physical examination revealed a blood pressure of 205/125 mm. Hg, grade 2 retinal changes, and moderate cardiac enlargement. Administration of reserpine, 1 mg. a day, was begun and increased to 2 mg. a day during the next two months. Drowsiness and fatigability of moderate degree were noted. In July, 1954, reserpine was reduced to 1 mg. a day because of excessive drowsiness, loss of energy, and inability to work efficiently. However, symptoms progressed and, in addition, loss of previous interests, feelings of futility and of hopelessness, mental sluggishness, inability to concentrate, crying spells, loss of appetite, and progressive insomnia developed. In spite of expressions of guilt, self-depreciation, and self-accusation, she retained aggressive impulses toward her husband and stepmother. Upon readmission to Duke Hospital in August, 1954, her mental status was that of depression with little anxiety. A history of previous periods of mild depression was then obtained. After an initial unsuccessful period of reassurance and supportive treatment, electric shock therapy was given with good results. Since November, 1954, previous lifelong multiple organ system complaints and symptoms suggesting periods of hyperventilation are still present, but depression has not recurred. Blood pressure control has been partially successful with cryptenamine (Unitensen).

CASE 4.—A 53-year-old man had a short period of depression at age 33 related to family responsibilities after death of parents. In 1952 a second episode of depression occurred during thiocyanate therapy for asymptomatic hypertension, but the drug was not thought to be involved in its genesis. When the patient was first examined at Duke Hospital in July, 1954, his blood pressure was 190/100 mm. Hg, there were grade 2 retinal changes, and there was slight cardiomegaly. Initial treatment consisted of administration of protoveratrine, 3 mg. daily, with insignificant lowering of blood pressure. In August, 1954, reserpine, 1.2 mg. a day, was given in combination with protoveratrine. Initial feelings of relaxation and well-being were subsequently followed by drowsiness and fatigue. These latter symptoms progressed along with the development of inability to work efficiently or to concentrate, loss of energy, insomnia, crying spells, loss of libido, constipation, and apprehension. When hospitalized at Duke Hospital in January, 1955, a diagnosis was made of recurrent depression and anxiety possibly related to reserpine therapy. Treatment consisted of reassurance, sedation for insomnia, and chlorpromazine (Thorazine) therapy to facilitate relaxation. After 10 days of treatment he was considerably improved but relapsed about two weeks after leaving the hospital. Electric shock therapy administered four weeks later produced striking improvement in his condition. Upon leaving Duke Hospital, his mental status was good and his blood pressure was normal without drug therapy.

CASE 5.—A 60-year-old man had been a successful businessman and happily married. There had been known hypertension for 20 years but no previous psychiatric disorder. Retinal vein occlusion resulted in his first admission to Duke Hospital in April, 1954. The blood pressure was 180/120 mm. Hg, and there was slight cardiac enlargement. His eye condition was treated with anticoagulant therapy; and Raudixin, 300 mg. daily, and protoveratrine, 1.5 mg. daily, were given for treatment of his hypertension. In May, 1954, reserpine therapy, 0.75 mg. daily, was started after discontinuing administration of Raudixin. In September, 1954, feelings of listlessness, despondency, and loss of energy developed. Crying spells, insomnia with early morning awakening, and suicidal tendency followed. Feelings of self-depreciation and self-accusation were absent. A nervous unhappy feeling in his stomach was a prominent complaint. Current environmental factors of possible importance were business difficulties and a serious illness of his wife. Administration of reserpine, which had not influenced blood pressure appreciably, was discontinued without improvement in his mental condition. In October, 1954, a gastrointestinal survey failed to demonstrate a cause for his abdominal complaints. In November, 1954, after failure to respond to reassurance and supportive therapy, electric shock therapy was followed by striking improvement. Subsequent outpatient evaluation on April 15, 1955, revealed continued improvement even though his wife had recently died. He no longer seemed agitated and spoke of his past illness with considerable insight.

CASE 6.—A 42-year-old woman was first seen at Duke Hospital in April, 1954, with a history of periods of nervousness and anxiety of many years' duration and known hypertension for one year. Physical examination revealed a blood pressure of 220/120 mm. Hg, grade 2 retinal changes, and slight cardiac enlargement. After clinical evaluation, initial treatment consisted of administration of reserpine and protoveratrine, 2 mg. a day respectively. Moderate fatigue, lack of energy, and drowsiness developed after several weeks of therapy. In July, 1954, reserpine therapy was increased to doses of 4 mg. a day because of unsatisfactory control of blood pressure. During the next few weeks, symptoms of fatigue and drowsiness became worse, and progressive insomnia, inability to concentrate or to work, crying spells, and guilt feelings developed. During hospitalization at Duke Hospital in August, 1954, her moods fluctuated between periods of apprehension and depression and periods of relative relaxation. During subsequent psychiatric examination, feelings were expressed of unworthiness toward God and a fear that "God would cause her to become insane before she had a chance to repent." Other complaints were an empty feeling in her head and sensations of sweating and coldness over her body. Treatment consisting of reassurance, occupational therapy, and full ventilation of her anxieties resulted in progressive improvement that has been maintained. In April, 1955, hospitalization at

Duke Hospital was necessary again because of early malignant hypertension, but there has been no recurrence of her mental symptoms.

Case 7.—A 44-year-old man had been energetic, hard-working, well adjusted, and had never suffered from mood swings. He was first seen at Duke Hospital in 1952 with a four year history of progressive hypertension. From this time until May, 1954, his blood pressure was satisfactorily controlled with combined hexamethonium and hydralazine therapy. In July, 1954, after a control period without drug therapy, his blood pressure was 190 to 220/100 to 110 mm. Hg, there were grade 2 retinal changes, and there was moderate cardiomegaly. Reserpine therapy with doses of 2.4 mg. a day was started and for an initial period of two months he felt happier and less irritable. In November, 1954, nasal stuffiness and fatigability developed, and his favorite sport of golf was no longer enjoyed. Gradually, loss of interest, inability to concentrate, loss of memory for recent events, and inefficiency for work developed to the point where he became apprehensive in regard to the future of his employment. While normally he could dictate letters easily and make decisions quickly, he now would postpone any decisions as long as possible and needed extra time and effort to execute his actions. There was lack of energy at home and withdrawal from social activities because of inability to enter into conversation. Insomnia with early awakening developed, but his appetite and libido remained unchanged. Suicidal thoughts and feelings of self-accusation and condemnation were denied. Because of his mental symptoms he was hospitalized at Duke Hospital in January, 1955. It was the opinion of the psychiatrist that reserpine therapy appeared to have precipitated a psychopharmacological reaction primarily of anxiety and agitation in a man who in his job as purchasing agent depended on his memory and mental faculties for his livelihood and who had begun to feel uneasy and insecure about his economic future. Treatment consisted of reassurance, chlorpromazine therapy to help promote relaxation, and sedatives for insomnia. After two weeks, he was sufficiently improved to leave the hospital. His mental status has continued to improve, and, when last heard from in April, 1955, he was getting along well except for mild insomnia.

COMMENT

The majority of patients receiving Rauwolfia compounds undergo some alteration in mood while taking this drug. Some patients note feelings of relaxation, tranquility, and a sense of well-being with abolition of anxiety and agitation. Other patients fare less well and complain of lethargy, drowsiness, fatigue, and loss of initiative and previous interests. Freis reported recently five cases of severe depression occurring in patients on Rauwolfia therapy for hypertension.[4a] Locket noted development of depression in 5 of 39 patients, with attempted suicide in one patient, during Rauwolfia therapy for hypertensive vascular disease.[6] Genest and associates found nervous depression and fear occurring as a complication in 4 of 76 patients during Rauwolfia therapy.[7] Doyle and Smirk observed depression occurring in 11 out of 28 patients who received reserpine in large amounts. However, no comment was made regarding the severity of depression.[8] Several other authors mention depression as a complication occurring during reserpine therapy but fail to emphasize its frequency or severity.[9] In the present report concerning seven patients who became mentally ill while receiving Rauwolfia, anxiety and agitation were prominent by contrast to depression with little anxiety reported by Freis.[4a] Suicidal tendencies were present in two patients.

Administration of Rauwolfia in large doses appears to be important in the genesis of depression and anxiety that may develop.[10] For the five patients who developed these symptoms while receiving reserpine, the dosage ranged from 1.2 mg. to 4 mg. a day, which is in excess of the currently recommended dose of less than 1 mg. of reserpine a day.[11] In addition, two patients developed mental illness while receiving 400 mg. of Raudixin a day. While Freis did not observe depression to occur in patients receiving Rauwolfia compounds other than reserpine, additional preparations were used infrequently.[4a] In accord with previous observations,[4a] prolonged administration of Rauwolfia for periods varying from three to six months preceded the onset of mental illness. In general, the illness developed gradually and appeared primarily in patients for whom the drug had produced excessive unpleasant symptoms. The illness progressed in three patients despite a reduction in drug dosage. In one patient, the illness developed acutely without significant preliminary reactions. The slow convalescence after discontinuance of Rauwolfia therapy may be related to slow elimination of the drug. While three of seven patients received protoveratrine simultaneously with Rauwolfia, mental illness has not been recognized as a complication of protoveratrine therapy. Disturbing environmental factors active at the onset of mental difficulty were of possible significance in only one of seven patients. Doyle and associates have observed that administration of Rauwolfia compounds frequently aggravates preexisting depressive states.[8] While none of our seven patients were mentally ill at the onset of Rauwolfia therapy, it is of particular interest that five patients gave a history of previous psychiatric illness. It is thus suggested that therapy with Rauwolfia extracts may trigger or precipitate a mental illness in somewhat unstable patients already predisposed. Although the exact pharmacological action of Rauwolfia is not completely understood, current evidence indicates that its hypotensive action is upon the central nervous system, most likely the hypothalamus.[12] Alterations of mood observed in patients during Rauwolfia therapy may also result from the drug's action on the hypothalamus, but the genesis of these alterations is not clear.[12]

Kline has observed beneficial effects in patients with psychoneurosis while receiving Rauwolfia in that this drug tends to relieve abnormal inhibition and excessive preoccupation with the opinion of other people. Obsessive and compulsive behavior was also diminished.[13] Among our patients, there was a willingness to talk about preexisting psychiatric disturbances and in some almost a desire to confess previous indiscretions.

If the development of agitation and depression are to be avoided during prolonged Rauwolfia therapy, certain precautions may be helpful in reducing this complication. Although the exact optimum dosage of reserpine

---

6. Locket, S.: Oral Preparations of Rauwolfia Serpentina in Treatment of Essential Hypertension, Brit. M. J. **1**: 809-813 (April) 1955.

7. Genest, J.; Adamkiewicz, L.; Robillard, R., and Tremblay, G.: Clinical Uses of Rauwolfia: I. In Arterial Hypertension, Canad. M. A. J. **72**: 483-489 (April) 1955.

8. Doyle, A. E., and Smirk, F. H.: Hypotensive Action of Reserpin, Lancet **1**: 1096-1097 (May) 1954.

9. Singh, I.: Reserpine in Hypertension, Brit. M. J. **1**: 813-817 (April) 1955. Dustan, H. P.; Taylor, R. D.; Corcoran, A. C., and Page, I. H.: Clinical Experience with Reserpine (Serpasil): A Controlled Study, Ann. New York Acad. Sc. **59**: 136-140 (April) 1954. Wilkins.[1]

10. Freis.[4a] Doyle and Smirk.[8]

11. Wilkins.[1] Freis.[4a]

12. Plummer, A. J., and others: Pharmacology of Rauwolfia Alkaloids, Including Reserpine, Ann. New York Acad. Sc. **59**: 8-21 (April) 1954.

13. Kline, N. S.: Use of Rauwolfia Serpentina Benth. in Neuropsychiatric Conditions, Ann. New York Acad. Sc. **59**: 107-132 (April) 1954.

may vary slightly among different patients, most investigators agree that the daily dosage should preferably not exceed 1 mg. a day.[11] During prolonged therapy, the drug should be reduced gradually to the minimum amount that will produce satisfactory control of blood pressure. Close observation is mandatory for patients whose histories indicate previous psychiatric disorder. When complaints of excessive fatigue, loss of interest and initiative, inability to concentrate or work efficiently, insomnia, "feeling blue," or excessive nervousness appear, Rauwolfia dosage should be reduced promptly or discontinued temporarily. Further administration of Rauwolfia under these circumstances may result in a state of anxiety or depression.

SUMMARY

A severe mental illness developed in 7 (7.5%) of 93 patients receiving Rauwolfia for periods of 2 to 12 months. Two (7%) of 28 patients developed this illness while receiving a crude root preparation, Raudixin, and 5 (7.7%) of 65 patients while taking the purified alkaloid, reserpine. The mood disturbance was primarily depression in two patients, depression with anxiety in three patients, and anxiety state in two patients. Suicidal tendencies were present in two patients. A history of previous psychiatric illness was obtained from five patients. All patients received reserpine in dosage relatively large as compared to that currently recommended. Two of the seven patients responded to reassurance and supportive therapy. Five patients required electric shock therapy. The response was good for three patients and fair for two patients. The potential severity of this complication arising during Rauwolfia therapy is fully emphasized. Caution in Rauwolfia administration is recommended, with particular reference to total daily dosage and to previous psychiatric history.

PSYCHOSIS APPARENTLY PRODUCED BY RESERPINE

Henry A. Schroeder, M.D.
and
H. Mitchell Perry Jr., M.D., St. Louis

The use of reserpine has become widespread, both for its tranquilizing effect in hypertension [1] and its curiously unexplained action in schizophrenic reactions and other psychotic and psychoneurotic states.[2] The fact that a yohimbine-like drug will act upon specific functions of the brain, probably on the hypothalamus or its connections, has opened the way to investigations on the chemical disorders of cerebral metabolism leading to functional disturbances. Reserpine and its chemical analogues are said to be safe and free from serious side-effects. Because psychoses developed in five individuals taking this drug, with slow recovery after withdrawal, and because nervousness, insomnia, and agitation have appeared in others, we considered it advisable to call attention to such reactions.

REPORT OF CASES

Case 1.—A 60-year-old bookkeeper had exhibited asymptomatic hypertension for at least two years. There had been no episodes of overt psychosis or neurosis during his lifetime. His blood pressure was 212 mm. Hg systolic and 110 mm. diastolic; grade 2 (Keith-Wagener) ocular fundi were seen; and his electrocardiogram showed a left ventricular strain pattern. He was given 1.0 mg. of reserpine a day early in March, 1954. Seven weeks later he complained of excessive drowsiness; his blood pressure was 210 mm. Hg systolic and 100 mm. diastolic. The dose was reduced to 0.5 mg. Eleven weeks after beginning therapy he telephoned, saying that he was nervous, forgetful, and wept easily. The dose was reduced to 0.25 mg. a day. He did not return to us, but by the 17th week he exhibited severe paranoid depression with suicidal tendencies and spent one month in another hospital under observation by a psychiatrist. Recovery was slow but complete when administration of the drug was omitted, and no further psychosis developed even during emotional shock following the sudden death of his wife.

Case 2.—A 59-year-old woman had suffered from severe arterial hypertension for 19 years, with headaches and dizziness as her principal symptoms. Her blood pressure was 252 mm. Hg systolic and 118 mm. diastolic; her heart was moderately enlarged in x-ray photographs and by electrocardiogram and her renal function good. She was treated in November, 1953, with graduated oral doses of hexamethonium chloride and hydralazine hydrochloride, with an average blood pressure of 170/90 mm. Hg achieved at home. In addition, the whole root of Rauwolfia serpentina was given, 250 mg. per day, and was discontinued after four months. Reserpine therapy, 1.0 mg. per day, was begun in July, 1954. In early September she became depressed, agitated, frightened, and paranoid, with considerable mental dulness. She was afraid of losing her mind. Readmitted to the hospital in October, she exhibited severe depression with marked paranoia, which at one time was overt enough for her to be confined to the violent ward for a night. Suicidal threats became obvious, and a psychiatrist considered her a definite risk. Reserpine therapy was discontinued and depression gradually improved, but for a month wide swings in mood were noticed and constant attendance to avoid suicide was required. Six weeks after therapy was stopped, she was clear mentally and has remained so. No prior psychotic episodes were known.

Case 3.—A 47-year-old woman had exhibited moderate arterial hypertension for three years and had suffered one cerebral hemorrhage, the sequelae of which were apparently minimal. She had never experienced psychotic episodes but was somewhat depressed during her menstrual periods all her adult life. In December, 1953, her blood pressure was 180 mm. Hg systolic and 108 mm. diastolic, without other signs of damage to her cardiovascular system. Cerebral angiogram revealed no aneurysm. She was given the whole root of Rauwolfia serpentina, 200 mg. per day, and hydralazine hydrochloride, 100 mg. per day. During the subsequent seven months, repeated episodes

---

From the Hypertension Division, Department of Internal Medicine, Washington University School of Medicine, and Barnes Hospital.

This study was supported by a grant from the National Heart Institute, United States Public Health Service, and the Lasdon Foundation.

[1] Wilkins, R. W., and Judson, W. E.: Use of Rauwolfia Serpentina in Hypertensive Patients, New England J. Med. **248**: 48, 1953.

[2] (*a*) Kline, N. S.: Use of Rauwolfia Serpentina Benth. in Neuropsychiatric Conditions, Ann. New York Acad. Sc. **59**: 107, 1954. (*b*) Noce, R. H.; Williams, D. B., and Rapaport, W.: Reserpine (Serpasil) in the Management of the Mentally Ill, J. A. M. A. **158**: 11 (May 7) 1955. (c) Barsa, J. A., and Kline, N. S.: Treatment of Two Hundred Disturbed Psychotics with Reserpine, ibid. **158**: 110 (May 14) 1955.

of depression appeared with hysterical behavior and outspoken threats of suicide; these became marked enough to cause her admission to the psychiatric service, where she was given seven electroshock treatments. She was severely depressed but cleared slowly and was discharged after six weeks, taking reserpine, 1.0 mg. per day, for moderately hypertensive levels of blood pressure. Readmission was required, however, six weeks later for recurrence of depression, agitation, nervousness, insomnia, and suicidal threats. She was given a total of 14 electroshock treatments and discharged seven weeks later partially improved but now receiving reserpine, 4.0 mg. per day. She continued to be depressed, agitated, and nervous for the following two months, when reserpine therapy was reduced to 1.0 mg. per day and then discontinued. During the subsequent six week period she recovered completely.

CASE 4.—A 45-year-old Negro woman had suffered from the malignant stage of hypertension, congestive heart failure, and impaired renal function with mild azotemia in April, 1954. She was treated with graduated doses of ganglionic blocking agents, hydralazine hydrochloride, 750 mg. per day, and the whole root of Rauwolfia serpentina, 300 mg. per day, with excellent results. In August, however, she developed "hydralazine disease"[3] with hepatitis, was readmitted to hospital, and recovered after a stormy course lasting three months. During the expected return of hypertension when hydralazine therapy was discontinued, large doses of ganglionic blocking agents and reserpine, 1.0 mg. a day, were given; after one week, 2.0 mg. of reserpine was administered daily intramuscularly for two days. She became uncooperative, incontinent, disoriented, apprehensive, and depressed; occasionally she was lethargic and visual hallucinations appeared. These symptoms worsened for three days, appearing and disappearing, but she recovered completely seven days after reserpine therapy was discontinued. Insofar as is known, she had not exhibited psychotic behavior previously.

CASE 5.—A 51-year-old man had exhibited moderate arterial hypertension for eight years in December, 1954. Partial gastrectomy had been performed in 1946 for peptic ulcer. He was a tense individual with excessive drive but had never suffered from a psychotic episode. Aside from persistent hypertension of 170 to 240 mm. Hg systolic and 100 to 130 mm. diastolic pressure, few abnormalities were discovered in hospital. He was given reserpine, 1.0 mg. per day, and hydralazine hydrochloride, 400 mg. per day, in divided doses. Mild depression was noticed in January, 1955, which continued. In early May he began to become agitated, more depressed, and expressed a fear of dying or becoming insane. He was readmitted to the psychiatric service June 8, when reserpine and all other therapy was discontinued. He was given chlorpromazine, 100 mg. a day, for three weeks without improvement, then nine electroshock treatments, and was discharged as recovered nine weeks after admission.

COMMENT

In three of these five individuals, prodromal symptoms consisted of increased nervousness, insomnia, agitation, and depression. Continuation of the therapy with the drug then resulted in the sporadic but increasingly recurring bouts of paranoia with suicidal tendencies, followed by lucid intervals with clear insight. Recovery was slow and was achieved in from one to two months. In the fourth patient, acute psychosis appeared after parenteral administration of reserpine, with a week required for recovery; the patient was suffering from "hydralazine disease" and may have been more susceptible to a disorder of cerebral function, although psychosis has not been observed in delayed toxic reactions to this drug. We have come to recognize that administration of reserpine, usually a sedative agent, may cause excitement in some individuals; when a patient taking this agent for a month or more complains of increased nervousness, we reduce the dosage or omit the administration of the drug. Reactions of this nature have been observed a number of times in hypertensive patients. One can only speculate on the cause of the reverse reaction of this sedative drug. The doses used were not abnormally high, not exceeding standard sizes dispensed in pharmacies. Freis[4] reported five cases of patients with mental depression, apparently brought on by reserpine, occurring two to four months after institution of therapy with 1.0 to 2.0 mg. doses daily, four patients recovering rapidly after withdrawal. In two, suicidal tendencies were seen, but none required hospitalization. One suicide was recently reported in a psychotic individual; mental confusion, grand mal convulsive seizures, and Parkinsonism also occurred, apparently induced by the drug.[2c]

Other reactions to this drug have been observed. Although most of them have been of a mild nature, recurrence of peptic ulcer with bleeding has occurred in three patients, one requiring subtotal gastrectomy for perforation; ulcer has developed in one. Severe mucous colitis with small ulcerations has occurred in one. These five formerly hypertensive patients were normotensive after intensive therapy for two to three years. While it is not certain that gastrointestinal conditions are influenced by administration of reserpine, the drug could conceivably act as an initiating factor in view of the relative parasympathetic stimulation that is produced. Although in most individuals reserpine therapy appears to be relatively innocuous, especially in small doses, adverse reactions on mental function and on peripheral autonomic areas must be considered in any individual receiving this drug.

SUMMARY

Psychotic behavior with agitated depression has occurred in five patients receiving reserpine, with complete recovery when the drug was discontinued. Such behavior had not been known in these patients prior to taking this drug.

600 S. Kingshighway (Dr. Schroeder).

---

[3] Perry, H. M., Jr., and Schroeder, H. A.: Syndrome Simulating Collagen Disease Caused by Hydralazine (Apresoline), J. A. M. A. **154**: 670 (Feb. 20) 1954.

[4] Freis, E. D.: Mental Depression in Hypertensive Patients Treated for Long Periods with Large Doses of Reserpine, New England J. Med. **251**: 1006, 1954.

Cause of Obesity.—Obesity takes many forms and is the end result of various interacting factors, extrinsic and intrinsic. The extrinsic causes of obesity include excessive caloric intake, and perhaps nutritional deficiencies as well; relative inactivity; toxic effects, and possibly stress situations. The extrinsic factors may bring certain of the intrinsic causes of obesity into operation. The intrinsic causes include the constitutional, the diencephalohypothalamic, the endocrine metabolic, and the enzymatic. All of these may be interrelated and interactive. Anywhere along the pathways of the numerous intricate reactions of carbohydrate-fat metabolism, of fat mobilization, and of fat deposition, a disturbance might occur which conceivably could lead to obesity. There is now experimental evidence that in one known form of obesity the pancreas is involved. Although perhaps less conclusive, results indicate also that other endocrine glands, the adipose tissue, and enzyme systems play at least a part-role. That hyperphagia or inability to recognize satiety may lead to obesity is demonstrated by experiments with hypothalamic induced lesions or stimulation. Again, metabolic factors may be concurrently involved.—M. B. Fertman, M.D., Newer Concepts of Experimental Obesity, *A. M. A. Archives of Internal Medicine,* June, 1955.

HYPERTENSION TREATED WITH RAUWOLFIA SERPENTINA (WHOLE ROOT) AND WITH RESERPINE

CONTROLLED STUDY DISCLOSING OCCASIONAL SEVERE DEPRESSION

Richard W. P. Achor, M.D., Norbert O. Hanson, M.D.
and
Ray W. Gifford Jr., M.D., Rochester, Minn.

Beginning with the provocative report by Vakil[1] in 1949, and especially since Wilkins and his associates[2] introduced the drugs into the United States, preparations of Rauwolfia serpentina have been used with increasing frequency in the treatment of essential hypertension. In 1952 the highly purified alkaloid, reserpine, was isolated from Rauwolfia serpentina,[3] and this has been thought to be its chief active principle.[4] If this is true and if both preparations are equally effective, then it would seem preferable to use a single highly potent alkaloid rather than the mixture of various substances contained in the crude root. However, there has been some doubt as to whether reserpine is as efficacious as the whole root in the treatment of hypertension. We are here reporting the observations made in a controlled comparative study in which both the crude drug and reserpine were used in the treatment of essential hypertension.

PROCEDURE

Selection of Patients.—Most workers have suggested that, when used alone, Rauwolfia is most effective for the treatment of hypertension of mild to moderate severity; hence we endeavor to select such patients. Ambulatory patients from the local territory were accepted if their average blood pressure exceeded 165 mm. Hg systolic and 90 mm. diastolic during an observation period of two or more months prior to the study. In all patients there was ample previous history or records to verify the presence of chronic and sustained hypertension. All patients underwent complete physical examinations and sufficient additional studies to eliminate cases of secondary hypertension and to furnish data needed in assessing the severity of the hypertension.

Composition of Sample.—In all, 58 white adult patients were selected. Fifteen were male and 43 female, giving a ratio of 3 women to one man. Their ages ranged from 35 to 79 years, with an average age of 57 years. The discovery of hypertension could be dated with reasonable accuracy in 50 patients from previous medical records, and in these the average duration of hypertension since discovery was 11½ years. The average blood pressure for all patients prior to the study was 193 mm. Hg systolic and 110 mm. diastolic. The numbers of patients in the various ranges of blood pressure elevation are shown in table 1. In about two-thirds of the patients phenobarbital was administered during this period of observation.

Examination of the ocular fundi revealed that 54 persons had hypertensive changes that were graded group 1 or 2 by the Keith-Wagener-Barker classification. Four patients had retinal findings that were graded group 3, and none with group 4, or malignant hypertensive retinopathy, were included. The concentration of blood urea was within normal limits in all but eight patients; in seven of these persons the concentration was between 40 and 50 mg. per 100 cc., and in one it was 64 mg. per 100 cc. Five patients had residual evidence of previous cerebral infarction but were entirely ambulatory. A number of patients had some cardiac abnormality, as seen in the following breakdown: 12 persons showed definite enlargement of the cardiac silhouette on routine roentgenograms of the thorax; 21 had changes in their electrocardiograms suggestive of left ventricular hypertrophy; 11 gave a history compatible with insufficiency of the coronary arteries, and 3 of these were known to have sustained a previous myocardial infarction; and 4 patients required active treatment for congestive heart failure at the onset of the study.

Table 1.—*Average Values for Blood Pressure Before Study Periods*

Systolic Pressure	Patients	%	Diastolic Pressure	Patients	%
160-179	17	29	90-104	17	29
180-199	22	38	105-119	28	48
200-219	13	22	120-134	12	21
220-250	6	11	135+	1	2
Total	58	100	Total	58	100

Methods.—The study was conducted as a "double blind"; that is, neither the physicians nor the patients knew when an active drug was given nor just which drug was being administered. All the tablets—active drugs and placebo—appeared identical, and all were administered in the same manner in four doses a day throughout. The patients came in weekly at their own convenience, and after a period of rest the blood pressure was taken several times by a physician while the patient was in the sitting position. The two lowest readings together with the pulse rate were recorded, along with relevant notes as to the patient's progress and as to side-effects. Any

---

From the Section of Medicine, Mayo Clinic and Mayo Foundation.

The *Mayo Foundation* is a part of the Graduate School of the University of Minnesota.

All medicines and placebos used in this study were supplied through A. Dale Console, M.D., E. R. Squibb & Sons, New York.

[1] Vakil, R. J.: A Clinical Trial of Rauwolfia Serpentina in Essential Hypertension, Brit. Heart J. **11**: 350-355 (Oct.) 1949.

[2] Wilkins, R. W.; Judson, W. E., and Stanton, J. R.: Preliminary Observations on Rauwolfia Serpentina in Hypertensive Patients, in Proceedings of the New England Cardiovascular Society, 1951-1952, Boston, Massachusetts Heart Association, 1951-1952, p. 34. Wilkins, R. W., and Judson, W. E.: The Use of Rauwolfia Serpentina in Hypertensive Patients, New England J. Med. **248**: 48-53 (Jan. 8) 1953.

[3] Müller, J. M.; Schlittler, E., and Bein, H. J.: Reserpin, der sedative Wirkstoff aus Rauwolfia serpentina Benth., Experientia **8**: 338 (Sept. 15) 1952.

[4] (*a*) Wilkins, R. W., and others: Reserpine in the Treatment of Hypertension: A Note on the Relative Dosage and Effects, New England J. Med. **250**: 477-478 (March 18) 1954. (*b*) Wilkins, R. W.: Clinical Usage of Rauwolfia Alkaloids, Including Reserpine (Serpasil), Ann. New York Acad. Sc. **59**: 36-44 (April 30) 1954.

additional examination that was needed could be carried out at these visits.

After six months had elapsed, the patients were again examined and the necessary studies were made. At this time the schedule of administration of medicine and placebo was revealed so that the data could be compiled. In brief, the patients were given initially and alternately either the whole-root preparation of Rauwolfia serpentina in the amount of 400 mg. per day or reserpine in the amount of 0.4 mg. per day. This dosage ratio of 1 for reserpine to 1,000 for the crude drug has been tentatively accepted as being equivalent pharmacologically.[5] These medicines were administered for two months, then the placebo was given for the next two months, and finally the whole-root preparation or reserpine, whichever had not been administered originally, was given for the last two months.

RESULTS

In general, the patients were most cooperative and faithful in their visits. Of 58 patients who started, 53 completed the entire six month period of study. The following reasons are given for failure of five to complete the study. 1. Two patients sustained cerebrovascular accidents during the study and were hospitalized. 2. Another patient experienced such distressing abdominal cramps, bloating, and diarrhea that, despite a great decrease in the dosage, she had to be excluded from the study. 3. In the two remaining patients such severe emotional depression developed that it was imperative that medication be discontinued. Hence, the data to be presented are based on the 53 patients studied for the entire six months.

Effect on Blood Pressure.—The average blood pressure for all patients was 166/96 mm. Hg while they were taking the whole-root preparation and 165/97 while they were taking reserpine (table 2). Compared with pretreatment values, these represent decreases of 27 and 28 mm. Hg, respectively, in systolic pressure and 14 and 13 mm. Hg, respectively, in diastolic pressure. These same data are presented in more detail in table 3 to show the ranges of reduction in blood pressure. It was observed that the crude root appeared to produce more profound falls in diastolic blood pressure than did reserpine. This was also indicated by the observation that in five patients the crude drug produced a fall in diastolic blood pressure that was 10 mm. Hg or more greater than that obtained with reserpine, while the latter drug attained this result in only two individuals. There was a reduction in average diastolic blood pressure by 15 mm. Hg or more from pretreatment values in 25 persons (47%) with use of the whole root and in 21 patients (40%) with use of reserpine. In the main, however, there certainly was no appreciable difference in the ability of the two drugs to lower blood pressure. Their use did result in reduction of blood pressure from pretreatment levels by 30 mm. Hg or more systolic or by 15 mm. Hg or more diastolic in 40% of the patients treated.

TABLE 2.—*Average Values for Blood Pressure and Pulse Rate During Study Periods*

			Treatment Period		
		Before Study	Whole Root	Reserpine	Placebo
Systolic pressure		193	166	165	170
Diastolic pressure		110	96	97	102
Pulse rate		81	67	69	77
Values for the First and Second Month of Each Period					
Systolic pressure	1st month		167	167	166
	2nd month		165	163	174
Diastolic pressure	1st month		97	98	100
	2nd month		95	96	104
Pulse rate	1st month		67	69	75
	2nd month		67	69	79

TABLE 3.—*Reduction of Blood Pressure During Treatment*

		Whole Root		Reserpine	
	Reduction	Patients	%	Patients	%
Systolic pressure	None or increased	4	8	1	2
	1-14	9	17	9	17
	15-29	18	34	22	41
	30-44	17	32	18	34
	45-60	5	9	3	6
	Total	53	100	53	100
Diastolic pressure	None or increased	2	4	1	2
	1-9	12	23	11	21
	10-19	26	49	36	68
	20-29	13	24	5	9
	Total	53	100	53	100

During the intermediate two months, when the placebo was administered, the average pressure rose to 170/102 mm. Hg. This represents considerable decrease of average blood pressure from that of the pretreatment period and seemed best accounted for by two main factors. First, the effect exerted on blood pressure by Rauwolfia, either as whole root or as reserpine, lasted two to six weeks after its use had been discontinued. In a similar manner it was frequently observed that a similar period of two to six weeks was needed to obtain the maximal hypotensive effect after the beginning of medication. To test this observation, the average blood pressures for the first and second months of each period of drug administration and for the period of placebo administration were determined separately, since this would allow for a month of treatment with each medicine before its effect was assessed and would also permit a month for the drug to dissipate before the effect of the placebo was evaluated. The values for the second month of each period indicated an increased spread between the average blood pressure during treatment with an active drug and the average observed during the period of placebo administration (table 2). Thus, treatment of hypertension with Rauwolfia (crude root or reserpine) should not be abandoned until a trial period of at least two months has elapsed. The second factor in the reduction of blood pressure during the period of placebo administration, as compared with prestudy levels of blood pressure, was undoubtedly a psychogenic one. Certainly the patients became much less apprehensive about having their blood pressure taken as the study progressed. Then, too, the psychological effect of administering even a placebo is well known to result in some lowering of blood pressure.

Effect on Pulse.—The ability of the two drugs to slow the pulse rate was a most pronounced and readily apparent one that was demonstrated in nearly every patient, regardless of the effect on blood pressure (table 2). A decrease in pulse rate usually preceded any pronounced decrease in blood pressure, and the return of the pulse rate to pretreatment levels was more prompt after the administration of Rauwolfia had been discontinued than was the corresponding return of the blood pressure. It was through these observations that the period of placebo administration could be identified in nearly every patient without knowledge of the schedule of drug administration. Kline [6] and Harris [7] have made similar observations in this regard. In some patients the pulse decreased to rates between 45 and 55 per minute, and, although many patients remarked about the slow pulse rate, only one felt that it was disagreeable.

---

[5] Green, H. D.: Pharmacology of Antihypertensive Drugs, Am. J. Med. 17: 70-83 (July) 1954.

Beneficial Effects.—At the conclusion of the study nearly every patient expressed the wish to continue the medication even at his expense and despite the rather frequent occurrence of annoying side-effects. Subjectively, the principal benefit described was a feeling of well-being, freedom from much of the former tenseness, and the ability to relax. It was our impression that many patients reacted less strongly to environmental stimuli while taking the active drugs than they had prior to treatment.

Perhaps even more interesting was the improvement noted in the hypertensive sequelae of some patients. Reexamination of the ocular fundi at the conclusion of the study revealed distinct improvement in the retinal findings of 12 persons, with definite worsening described in two additional patients. Upon completion of the six month period, the value for blood urea was normal in four of the patients with previously elevated values. However, the values for two individuals were now mildly elevated when they had been normal originally. The value for one other patient increased from 64 mg. to 76 mg. per 100 cc. during the study period. Twelve people complained of headache or dizziness prior to the study period, and six were relieved of these complaints during treatment.

Of the 11 persons with pain from insufficiency of the coronary arteries, 4 seemed distinctly benefited in this regard at the time of reevaluation. Seven of the 21 patients with electrocardiographic evidence of left ventricular hypertrophy had more normal tracings at the end of the study period. The remaining 14 were essentially unchanged. Three of the 12 patients with an enlarged cardiac silhouette on roentgenograms of the thorax at the beginning of the study had normal-sized heart shadows upon completion of the six month period. Two patients with congestive cardiac failure improved to such extent during treatment that the use of digitalis was discontinued and no additional medicaments were required.

Prior to beginning the study we endeavored to predict which patients would respond favorably to the use of Rauwolfia preparations. We had believed that younger persons, in whom there were increased emotional factors and in whom serious complicating hypertensive sequelae had not yet developed, would show the best responses. It was instructively disappointing to find that our efforts to predict the good results were unsuccessful in the majority of instances. Only by an adequate trial of treatment can one determine which patients will obtain satisfactory control of their hypertension.

Side-Effects.—The evaluation of side-effects arising from the use of any drug is difficult to do in an objective manner. In this study we did not attribute any complaint to use of an active drug if it was also experienced to a similar degree during administration of the placebo. In an effort to avoid suggestibility, no patient was informed as to the possible side-effects that might arise, and in questioning the patients as to their progress we encourage them to volunteer their own observations instead of asking them specific questions relative to the effects of drug therapy. Data on the side-effects encountered are given in table 4. Of the total complaints, 119 occurred during the use of the whole-root preparation, 111 were attributed to the use of reserpine, and only 31 were noted during the period in which the placebo was administered.

Nasal stuffiness or congestion was the commonest undesirable effect and was most bothersome when the patient was recumbent. The crude root not only caused this complaint more often than did reserpine but also produced more severe symptoms. Our efforts to relieve this distress by the use of vasoconstrictive nasal sprays and inhalers and with antihistaminic drugs was unsatisfactory in most instances. This observation is in agreement with that made by Green,[5] although Freis and Ari [8] said that antihistamines were of distinct value in avoiding nasal stuffiness and Kline obtained good results with naphazoline (Privine) hydrochloride. At no time did use of the drugs have to be discontinued, and most patients were able to tolerate the stuffiness without excessive difficulty. A sedative or calming effect occurred equally with use of the two drugs, and in the doses given they showed no difference in degree of sedation produced. For the most part, this effect was beneficial and desirable.

An increased appetite was noted by nearly every patient at some time during the study, but it was impractical to compare the three periods of drug administration in regard to this effect. The evaluation of this effect would be made especially difficult because of the fact that the patients frequently were obese and were constantly encouraged to reduce weight. In spite of this advice, how-

TABLE 4.—*Side-Effects in Fifty-Three Patients*

	Noted at Some Period		Whole Root		Reserpine	
Side-Effect	Patients	%	Patients	%	Patients	%
Nasal stuffiness	44	83	40	75	34	64
Sedative effect	40	75	34	64	34	64
Excessive appetite	40	75	..	..	..	..
Dreaming or nightmares	22	42	11	21	15	28
Laxative effect	15	28	9	17	11	21
Depressive reaction	10	17 *	9	16 *	6	10 *
Muscle aches or cramps	5	9	4	8	2	4
Headaches	4	8	4	8	2	4
Chilling sensations	3	6	3	6	1	2
Shortness of breath	3	6	3	6	2	4
Dizziness	3	6	2	4	2	4
Urinary urgency	2	4	0	0	2	4

* Including all 58 patients.

---

6. Kline, N. S.: Use of Rauwolfia Serpentina Benth. in Neuropsychiatric Conditions, Ann. New York Acad. Sc. **59**: 107-132 (April 30) 1954.
7. Harris, R.: Clinical Use of Reserpine (Serpasil) in Geriatrics, Ann. New York Acad. Sc. **59**:95-106 (April 30) 1954.
8. Freis, E. D., and Ari, R.: Clinical and Experimental Effects of Reserpine in Patients with Essential Hypertension, Ann. New York Acad. Sc. **59**: 45-53 (April 30) 1954.

ever, 75% of the patients gained weight during the study period, and this gain averaged 6 lb. (2.7 kg.) per person. Seventeen per cent of the patients lost an average of 6 lb. per person, and 8% remained unchanged. For those patients who gained weight, the average lowering of diastolic blood pressure for the six month study period was 11.7 mm. Hg, compared with 12.8 mm. for the patients who lost weight. Thus, the gain or loss in weight by the patients did not appear to cause any appreciable effect on their blood pressure. Nearly half (42%) of the patients felt that they had a definitely increased tendency to dream or to have nightmares while they were undergoing active medication. Reserpine seemed to be a slightly greater offender in producing this effect. For the most part, the dreaming was unpleasant and bothersome. The dreams often related to the individual's early life or were concerned with the sustaining of bodily injury and the infliction of harm on others. Occasionally, erotic dreams were experienced. Increase in looseness of the bowel movements with increased abdominal cramping was present in 28% of the patients while they were taking either drug. This effect tended to be more prominent when reserpine was being taken, but it was excessive in only one patient and caused her to discontinue the study entirely.

Emotional upsets developed in 10 of the 58 patients during the course of study, and these concerned us a great deal. The mildest form of upset consisted of increased tenseness, restlessness, insomnia, and a feeling of being very uncomfortable. This could progress to an outright episode of depression that seemed indistinguishable from those observed in psychiatric patients without hypertension. Three patients experienced a truly major depression; one of these required electroshock therapy, another was under psychiatric care for many months, and the third left town abruptly and we were not able to contact her again for three months. Then we found that she had been hospitalized and was under psychiatric care. Two of these patients were eliminated from the study, but the third completed the six month period and was continued on treatment with reserpine. Subsequently, she again experienced depressive symptoms and administration of the drug was promptly stopped. On this occasion she did not become as severely depressed as previously, and she recovered without the use of electroshock therapy. Three additional patients were considered to be moderately depressed, and four others experienced mild but definite depressive episodes. Since completion of the study, two more patients have experienced moderately severe depressive reactions that required cessation of Rauwolfia therapy. There did not appear to be any significant difference between the crude root and reserpine in promoting these depressive episodes.

In a small number of patients there were complaints that could not be adequately accounted for but that seemed to be definitely related to use of the drugs and were similar to those observed by others. These were muscle aching and cramps, headaches, odd chilly sensations and sensitiveness to cold, episodes of unexplained shortness of breath,[9] dizziness, and urinary urgency and frequency with negative results on genitourinary investigation.[10]

COMMENT

In this study we could not find any appreciable difference between the effects of the crude-root preparation of Rauwolfia serpentina and those of its purified alkaloid, reserpine. This similarity of results pertained not only to effects on blood pressure and pulse but also to the production of side-effects. If any difference existed, it was the tendency for the crude root to produce side-effects in greater frequency and severity. It must be pointed out that the daily dose of 0.4 mg. of reserpine is rather small, and we cannot say what might have resulted from use of larger doses. Our results agree with those of Wilkins and co-workers [4a] and with those of Green [5] in support of the belief that reserpine is the chief active principle of Rauwolfia serpentina.

It has been shown by many investigators that in some cases of essential hypertension preparations of Rauwolfia serpentina can be used with good results as the sole antihypertensive drug. Most clinicians are agreed that these good responses occur more often in cases of mild to moderate hypertension. In our study, 40% of the patients obtained a satisfactory reduction in blood pressure. This is more than the one-fourth of patients adequately controlled with moderate doses reported by Doyle and co-workers [9b] but less than the 50% observed by Livesay and co-workers.[11] Longer observation is needed, of course, to ascertain ultimate results, but a year after beginning this study these results still seem to be valid. We have observed, as have others, that frequently Rauwolfia therapy for two to six weeks is needed to obtain maximal hypotensive effect and that this effect often persists for an equally long time after use of the drugs has been discontinued. This prolonged effect of Rauwolfia suggests that administration of the drug more often than once daily is probably unnecessary, though we could not test this from our present data. In addition, we could find no adequate means of predicting the patients whose hypertension would respond well to treatment.

The most disturbing and unexpected observation to come out of this study is the frequency with which mental depressive states developed. This effect has been noted by others,[12] but the severity to which the symptoms can progress has not been sufficiently stressed. Dustan and co-workers [13] and Freis [14] have called attention to this, but in the cases that they reported several antihypertensive drugs were used. In our study Rauwolfia was the only antihypertensive agent used, and in most cases it was the only drug administered. We do not believe that the development of depressive reactions in our study was merely coincidental.

---

[9] (*a*) Winsor, T.: Human Pharmacology of Reserpine, Ann. New York Acad. Sc. **59**: 61-81 (April 30) 1954. (*b*) Doyle, A. E.; McQueen, E. G., and Smirk, F. H.: Treatment of Hypertension with Reserpine, with Reserpine in Combination with Pentapyrrolidinium, and with Reserpine in Combination with Veratrum Alkaloids, Circulation **11**: 170-181 (Feb.) 1955.

[10] Vakil.[1] Harris.[7]

[11] Livesay, W. R.; Moyer, J. H., and Miller, S. I.: Treatment of Hypertension with Rauwolfia Serpentina Alone and Combined with Other Drugs: Results in Eighty-Four Cases, J. A. M. A. **155**: 1027-1035 (July 17) 1954.

[12] Wilkins.[4b] Doyle and others.[9b]

[13] Dustan, H. P.; Taylor, R. D.; Corcoran, A. C., and Page, I. H.: Clinical Experience with Reserpine (*Serpasil*): *A Controlled Study*, *Ann.* New York Acad. Sc. **59**: 136-140 (April 30) 1954.

[14] Freis, E. D.: Mental Depression in Hypertensive Patients Treated for Long Periods with Large Doses of Reserpine, New England J. Med. **251**: 1006-1008 (Dec. 16) 1954.

In our experience with Rauwolfia preparations in the treatment of approximately 70 other hypertensive patients who have been followed since January, 1954, we have encountered 15 patients with depressed states; of these, one patient committed suicide, another attempted suicide, 2 had very severe manifestations that required electroshock treatment, 4 had moderately severe manifestations and required prolonged psychiatric management, and the remaining 7 had milder manifestations but had to be taken off treatment with Rauwolfia. These reactions have usually occurred after the drug has been administered for at least two months, and they have been observed after use of various preparations of Rauwolfia, namely whole root, alseroxylon fraction, and reserpine.

Because of the seriousness of this problem, nearly all patients with a depressive reaction have had psychiatric evaluation, and this problem is the subject of continuing investigation. We have been advised that all such patients had ample psychological background to render them susceptible to development of a depression. However this may be, it is our present belief that Rauwolfia serpentina increases the vulnerability of these susceptible persons to factors in their environment that may promote a depressive response. We believe that the seriousness and frequency of these reactions constitute a major contraindication to the indiscriminate and unsupervised use of Rauwolfia preparations in persons with essential hypertension. Since these drugs are quite useful in treating hypertension and since other side-effects attending their use are not serious, it would be most worthwhile if some means could be found to recognize, prior to beginning treatment, those patients who might become depressed. It is to be hoped that further study of this problem will shed light on how to avoid such distressing and disabling depressive reactions.

SUMMARY AND CONCLUSIONS

In a controlled study of 58 patients with essential hypertension, the effects of treatment with a whole-root preparation of Rauwolfia serpentina compared with the effects of treatment with the purified alkaloid, reserpine, revealed that, with the dosage used, the effects produced by the whole-root preparation did not appear to be significantly different from those produced by reserpine. Treatment with these preparations produced a satisfactory reduction of blood pressure in 40% of the patients. The use of Rauwolfia preparations is associated with a number of disagreeable side-effects, most of which are not serious. However, the occurrence of severe depressive reactions constitutes a serious objection to the indiscriminate and unattended use of these drugs.

OPERATIVE RISK IN PATIENTS WITH CORONARY HEART DISEASE

Benjamin Etsten, M.D.
and
Samuel Proger, M.D., Boston

There is general acknowledgment that patients with hypertensive heart disease, valvular heart disease, or noncyanotic congenital heart disease who are not in heart failure present little, if any, greater operative risk than patients without such abnormalities.[1] There is a feeling, however, that the presence of coronary heart disease greatly increases the surgical risk, since published studies show an operative mortality ranging from 4 to 40%.[2] The prognosis in patients with coronary heart disease who do not undergo surgery is better than was formerly believed.[3] Many such patients live long and productive lives after the onset of the symptoms or signs of their heart disease. They might be expected, therefore, to benefit from even elective surgery if its hazards were negligible. Recent advances have made it worthwhile to review the status of the operative risk in patients with coronary heart disease.

MATERIAL

This report is based on a study conducted during the past five years on 5,778 surgical patients at the New England Center Hospital. The patients were divided into three groups. Group 1 consisted of 517 patients with known coronary heart disease. They had either a history of a recent or old myocardial infarction, with electrocardiographic changes or a definite history of angina pectoris. Eleven of these patients had had a myocardial infarction two days to seven weeks prior to surgery. Group 2 consisted of 1,107 patients with no history of coronary heart disease but with unequivocally abnormal electrocardiograms, e. g., ST segment changes, inverted T waves, bundle branch block, or auriculoventricular block. Group 3 consisted of 4,154 patients with no clinical evidence of heart disease and with normal electrocardiographic tracings.

Age Distribution.—The age distribution for the three groups is shown in table 1. This table reveals that patients with no heart disease were predominantly under

---

From the departments of anesthesia and medicine, Pratt Diagnostic Clinic, New England Center Hospital and Tufts College Medical School.

[1] Ernstene, A. C.: The Management of Cardiac Patients in Relation to Surgery, Circulation **4**: 430-436 (Sept.) 1951. Scherf, D.: The Evaluation of Cardiac Patients for Surgery, New York State J. Med. **46**: 1915-1919 (Sept. 1) 1946. Dry, T. J.: The Surgical Risk of Patients with Heart Disease, editorial, Surg., Gynec. & Obst. **95**: 120-122 (July) 1952.

[2] Brumm, H. J., and Willius, F. A.: The Surgical Risk in Patients with Coronary Disease, J. A. M. A. **112**: 2377-2380 (June 10) 1939. Butler, S.; Feeney, N., and Levine, S. A.: The Patient with Heart Disease as a Surgical Risk: Review of 414 Cases, ibid. **95**: 85-91 (July 12) 1930. Master, A. M.; Dack, S., and Jaffe, H. L.: Postoperative Coronary Artery Occlusion, ibid. **110**: 1415-1418 (April 30) 1938. Morrison, D. R.: Risk of Surgery in Heart Disease, Surgery **23**: 561-570 (March) 1948. Saphir, O.; Priest, W. S.; Hamburger, W. W., and Katz, L. N.: Coronary Arteriosclerosis, Coronary Thrombosis, and Resulting Myocardial Changes: Evaluation of Their Respective Clinical Pictures Including Electrocardiographic Records, Based on Anatomical Findings, Am. Heart J. **10**: 567-595 (June) 1935.

[3] Cole, D. R.; Singian, E. B., and Katz, L. N.: The Long Term Prognosis Following Myocardial Infarction, and Some Factors Which Affect It, Circulation **9**: 321-334 (March) 1954.

60 years of age while those in the other two groups were mainly over 60 years. The median age of group 3 was 10 years younger than that of the other two groups. This weighted distribution could be considered more favorable for the group without heart disease; however, the total death rate for each group was corrected for age.

Surgical Procedures.—The operations were classified as major and minor procedures. The major procedures consisted of intra-abdominal, intrathoracic, intracranial, extrapleural, neck, and renal operations. The minor procedures included those in which patients were anesthetized for such procedures as cystoscopy and excision of varicose veins. In each of the three groups about 60% of operations were major and about 40% were minor.

TABLE 1.—*Percentage Distribution by Age of 5,778 Patients with Coronary Heart Disease*

	Group 1 Clinical Coronary Heart Disease With or Without EKG Changes		Group 2 Abnormal EKG Without Clinical Coronary Heart Disease		Group 3 No Heart Disease	
Age	No.	%	No.	%	No.	%
40-49	40	7.7	35	3.1	1,418	34.1
50-59	126	24.4	225	20.4	1,448	34.9
60-69	242	46.8	491	44.3	998	24.0
70-79	96	18.6	326	29.5	267	6.6
80-89	13	2.5	30	2.7	23	0.4
Total	517		1,107		4,154	

TABLE 2.—*Postoperative Mortality*

Status	No. of Patients	Total Died	%
Coronary heart disease	517	15	2.9
Abnormal EKG	1,107	39	3.5
No heart disease	4,154	86	2.0
Total	5,778	140	2.4

RESULTS

Postoperative Mortality.—Postoperative mortality was analyzed from the standpoint of deaths from all causes as well as deaths from heart disease alone. Presumably only the cardiac deaths would be traceable to the preexisting heart disease. However, the possibility was considered that the incidence of postoperative deaths from noncardiac causes such as thromboembolic disease, atelectasis, and pneumonia might be higher in patients with cardiac disease. This was found not to be the case. Analysis of the total postoperative mortality from all causes is shown in table 2.

The over-all mortality rate in the three groups corrected for age, by reference to the group without heart disease, is shown in table 3. When a correction is made for the age factor, the observed total death rate after surgery in a group of patients with coronary heart disease is not statistically higher than the expected rate based on experience with the group of patients without heart disease.

There were 15 postoperative deaths from all causes in the series of 517 patients who had coronary heart disease, as shown in table 4. Of these 15, 6 were cardiac deaths. Five of these six were attributable to acute postoperative myocardial infarction. One was the result of acute pulmonary edema. Of the total of 517 patients with coronary heart disease, 11 were operated upon, of necessity, during the acute phase of the coronary heart disease, that is, within two days to seven weeks after an acute myocardial infarction. Two of these patients died of their cardiac disease after surgery. The deaths were due to myocardial infarction.

A comparative analysis of the cause of death in the three groups is shown in table 5. There were only 4 postoperative cardiac deaths in the 506 patients with chronic coronary heart disease. This was an incidence of 0.8% postoperative cardiac mortality and was approximately the same as that found in patients with abnormal electrocardiograms but with no history of cardiac pain. Of the seven postoperative cardiac deaths in the patients with abnormal electrocardiograms but without a history of cardiac pain, four were due to myocardial infarction and three to acute pulmonary edema. The four postoperative, presumably cardiac, deaths in patients with no clinical or electrocardiographic evidence of heart disease were caused by acute pulmonary edema. Acute pulmonary edema was considered a cardiac complication when there was no other recognized cause for this edema. The incidence of postoperative deaths from pulmonary embolus was not significantly influenced by the presence of heart disease, as may be noted in table 5. Postoperative cardiac complications, even major ones, did not always prove fatal in the patients with coronary heart disease; five survived a postoperative myocardial infarction and two recovered from acute pulmonary edema.

The postoperative death rate as the result of cardiac causes in all of the patients with preexisting coronary heart disease was 1.2%. It was only 0.8% if the patients with acute coronary heart diseases are excluded. This figure, 0.8%, compares with 0.1% in those patients without preoperative evidence of heart disease. The difference in the postoperative death rates between the two groups (operative patients with chronic coronary heart disease and those with no heart disease) was twice the standard error and is statistically significant. Although the difference is significant, a mortality rate of 0.8% is obviously not very great.

An analysis of the effect of operative time upon the deaths from all causes in patients with coronary heart disease showed that the length of time of anesthesia and surgery did not apparently influence the postoperative mortality rate. A good sampling of various types of anesthesia (spinal, inhalation, or local) revealed that there was no statistical difference in mortality rate related to the anesthetic technique and agent.

The influence of a specific elective major operative procedure was evaluated. Six per cent of the intra-abdominal procedures were cholecystectomies. A comparative analysis of the results following a cholecystectomy was made among the three groups of patients, and no significant difference in the postoperative results was demonstrated.

COMMENT

The factors associated with anesthesia that might make surgery more hazardous in patients with coronary disease include circulatory depression; a major effect of deep anesthesia is circulatory depression. Systemic arterial hypotension may be caused by direct myocardial depression during deep ether anesthesia [4] or a decrease in cardiac output and total peripheral resistance by ether, deep thiopental, cyclopropane, and high spinal anesthesia.[5] Such changes rarely occur during light levels of anesthesia. Another factor is respiratory depression; deep anesthesia is also accompanied by depressed ventilation. Toxic levels of carbon dioxide may ensue and predispose to cardiac arrhythmias and postoperative hypotension. A third is hypoxia, the most frequent consequence of oropharyngeal obstruction and laryngeal spasm during anesthesia. Other causes are a decrease in the inspired oxygen tension, arterial hypotension, depressed ventilation, and shock. Shock may lead to the development not only of a single but often of multiple fresh occlusions in the elderly patient, particularly in those with coronary atherosclerosis.[6] Miscellaneous factors include straining, bucking, and coughing during the induction of anesthesia, which may predispose to a reduction of the cardiac output and a decrease of the coronary flow.

One can avoid the conditions that might precipitate a coronary episode if the anesthetic induction is smooth and rapid, the level of anesthesia is light, and the patient's respiration is actively "controlled." Ventilation is controlled by compressing the anesthesia bag rhythmically so as to keep the mean airway pressure within physiological levels. A minimum of the primary anesthetic agent is required with this method; alveolar ventilation is kept within physiological range and the circulation is not depressed.

TABLE 3.—*Postoperative Death Rate Corrected for Age*

	Group 1 Coronary Disease			Group 2 Abnormal EKG			Group 3 No Heart Disease		
Age, Yr.	No. of Patients	No. of Deaths, O *	E †	No. of Patients	No of Deaths, O	E	No. of Patients	No. of Deaths	Death Rate, %
40-49	40	1	0.5	35	3	0.5	1,418	18	1.3
50-59	126	4	2.2	225	5	3.9	1,448	25	1.7
60-69	242	4	8.7	491	19	17.6	998	36	3.6
70-79	96	6	2.2	326	11	7.5	267	6	2.3
80-89	13	0	0.6	30	1	1.2	23	1	4.3
Total	517	15	14.2	1,107	39	30.7	4,154	86	..

* O = Observed number of deaths.
† E = Expected deaths by calculation according to death rates obtained from group without heart disease.

TABLE 4.—*Postoperative Mortality in Patients with Coronary Heart Disease*

		Cause of Death			
Classification	Patients	M. I. or A. P. E.*	Pulmonary Embolism	Surgery or Previous Disease	No. of Deaths
Recent	11	2	..	..	2
Chronic	506	4	2	7	13
Total	517	6 (1.2%)	2 (0.4%)	7 (1.3%)	15

* Mitral insufficiency or acute pulmonary edema.

TABLE 5.—*Comparison of the Causes of Postoperative Mortality*

Status	No. of Patients	M. I. or A. P. E.*	Pulmonary Embolus	Surgery or Previous Disease
Coronary heart disease (chronic)	506	4 (0.8%)	2 (0.4%)	7 (1.3%)
Abnormal EKG	1,107	7 (0.6%)	5 (0.4%)	27 (2.4%)
No heart disease	4,154	4 (0.1%)	14 (0.3%)	68 (1.6%)

* Mitral insufficiency or acute pulmonary edema.

There are reports indicating that cyclopropane should not be administered to patients with coronary heart disease because it often produces arrhythmias. However, Johnstone [7] has demonstrated that the arrhythmias are caused not so much by the toxic effects of cyclopropane as by the deep levels of anesthesia produced by the cyclopropane resulting in decreased ventilation, carbon dioxide retention, and respiratory acidosis. Our own findings [8] are in agreement with those of Johnstone. The risk of cardiac mortality in patients with coronary heart disease undergoing surgery has been greatly lowered not only by improvement in the management of anesthesia but also by the notable advances in controlling infection, postoperative distention, thromboembolic disease, and disturbances in fluid and electrolyte balance.

A distinction should be made between coronary disease (coronary atherosclerosis without recognizable myocardial involvement) and coronary heart disease (cardiac pain or electrocardiographic changes or both). Coronary heart disease cannot be diagnosed until the appearance of cardiac pain and/or electrocardiographic changes that signify involvement of the heart muscle. Then the designation coronary heart disease is appropriate. Coronary disease in the form of atherosclerosis occurs in 50% of people between the ages of 45 and 50 [9] Even in the third decade the incidence of coronary atherosclerosis in presumably healthy individuals is not insignificant.[10] The incidence of coronary atherosclerosis in patients beyond 60 years of age is sufficiently high so that for all practical purposes, patients beyond 60 years of age should be dealt with as though they had coronary atherosclerosis.

---

[4] Brewster, W. R., Jr.; Isaacs, J. P., and Wain-Andersen, T: Depressant Effect of Ether on Myocardium of the Dog and Its Modification by Reflex Release of Epinephrine and Nor-Epinephrine, Am. J. Physiol. **175**: 399-414 (Dec.) 1953.

[5] Sancetta, S. M.; Lynn, R. B.; Simeone, F. A., and Scott, R. W.: Studies of Hemodynamic Changes in Humans Following Induction of Low and High Spinal Anesthesia, Circulation **6**: 559-571 (Oct.) 1952. Etsten, B. E.; Rheinlander, H. F.; Reynolds, R. N., and Li, T. H.: Cardiac Output and Related Hemodynamics During Cyclopropane Anesthesia in Humans, abstracted, Proceedings of the 44th Annual Meeting of the American Society for Pharmacology and Experimental Therapeutics, Fed. Proc. **13**: 352 (March) 1954. Etsten, B., and Li, T. H.: Hemodynamic Changes During Thiopental Anesthesia in Humans: Cardiac Output, Stroke Volume, Total Peripheral Resistance, and Intrathoracic Blood Volume, J. Clin. Invest. **34**: 500-510 (March) 1955.

[6] Blumgart, H. L.; Schlesinger, M. J., and Zoll, P. M.: Multiple Fresh Coronary Occlusions in Patients with Antecedent Shock, Arch. Int. Med. **68**: 181-198 (Aug.) 1941.

[7] Johnstone, M.: The Cardiology of Anesthesia, Anesth. & Analg. **31**: 325-331 (Sept.-Oct.) 1952.

[8] Etsten, B.; Reynolds, R., and Li, T. H.: Unpublished data.

[9] Schlesinger, M. J., and Zoll, P. M.: Incidence and Localization of Coronary Artery Occlusions, Arch. Path. **32**: 178-188 (Aug.) 1941.

[10] Enos, W. F.; Holmes, R. H., and Beyer, J.: Coronary Disease Among United States Soldiers Killed in Action in Korea: Preliminary Report, J. A. M. A. **152**: 1090-1093 (July 18) 1953.

Precautions designed to minimize the likelihood of myocardial infarction or coronary thrombosis should therefore be employed not alone when the clinical diagnosis of coronary heart disease can be made but when the diagnosis of coronary atherosclerosis can be suspected, i. e., in all patients beyond middle age. The problem of surgery and anesthesia in the patient with coronary disease is, therefore, inseparable from the problem of surgery in the elderly patient.

There were only four postoperative cardiac deaths in 506 patients with chronic coronary heart disease (0.8%); but, there were two deaths in only 11 patients with acute coronary heart disease (18.2%). The acute phase of coronary heart disease may be arbitrarily defined as extending over a period of three months and may begin either with an acute myocardial infarction, the onset of angina pectoris, or the worsening of preexisting angina pectoris. Only when it is absolutely necessary should patients be subjected to surgery within at least three months after evidence of the onset of acute coronary heart disease with or without infarction.

Since much can be done to make anesthesia and surgery relatively safe for patients with chronic coronary heart disease, how freely should they be subjected to surgery? Is the life expectancy of the patient with chronic coronary disease long enough to justify surgery when the risk is minimal? It now appears that, if a patient has survived his acute coronary heart episode and has made the transition into the chronic stage, his outlook for a long and productive life is good enough to warrant almost any operation that would otherwise be justifiable. It also appears that under such circumstances the risk of surgery is negligible insofar as cardiac deaths are concerned. This reassuring fact should make patients with coronary heart disease much less reluctant to submit to recommended surgery and much less frightened when they do.

SUMMARY

The postoperative mortality rate from all causes in 517 patients with evidence of coronary heart disease was 2.9% as compared to 2% in 4,154 patients with no clinical evidence of heart disease. The age of the patients studied ranged from 40 to 90 years. The death rate from cardiac causes following surgery was 0.1% in the group of patients with no recognizable heart disease. In 506 patients with chronic coronary heart disease the postoperative mortality was only 0.8%. There were 2 cardiac deaths (18.2%) in a group of 11 patients who required emergency operations during the course of their acute myocardial infarctions. There was no significant increase in the number of deaths caused by pulmonary embolus, surgical and anesthesia complications, or preexisting disease in patients with coronary heart disease. The operative risk is increased only slightly in patients with chronic coronary heart disease provided proper precautions are taken during and after anesthesia to prevent the impairment of coronary blood flow and of oxygenation.

Harrison Avenue and Bennet Street (11) (Dr. Etsten).

CLINICAL NOTES

GOITER IN NEWBORN INFANT DUE TO MOTHER'S INGESTION OF PROPYLTHIOURACIL

Harold H. Aaron, M.D.
Samuel J. Schneierson, M.D.
and
Edward Siegel, B.S., New York

It is customary to classify congenital goiter into two groups: that occurring in endemic goiter regions and that occurring in nongoitrous areas in which there is no iodine lack.[1] In this presentation we are concerned with an instance of marked thyroid enlargement in a newborn infant in a nonendemic area. The etiology became clear when it was ascertained after birth that the mother had been continuously on a regimen of propylthiouracil for a period of 10 months preceding delivery.

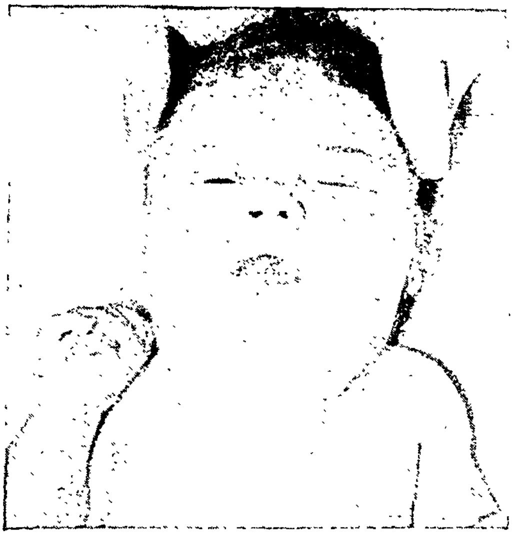


Fig. 1.—Appearance of infant with large neck mass.

REPORT OF A CASE

An infant, weighing 7 lb., 14 oz. (3,572 gm.) at birth, was delivered spontaneously, without obstetric difficulty, at Lebanon Hospital on Feb. 9, 1954. At once it was evident that the infant was in moderate respiratory distress, that there was marked enlargement of the neck anteriorly and bilaterally, and that the neck remained in a constantly hyperextended position. At birth the pertinent physical findings were as follows: slight, but consistent, inspiratory stridor; strong cry; no cyanosis but definite infracostal retraction on inspiration; face puffy; and neck hyperextended, evidently because of large neck mass (fig. 1). Palpation revealed this mass to be of unusually soft consistency and obviously made up of a right lobe, isthmus, and left lobe, with a general outline consistent with thyroid configuration. The entire neck, with the exception of its posterior surface, appeared to be hugely swollen, the right side more than the left.

From the Bertha C. Reiss Radioisotope Laboratory and the Department of Pediatrics, Lebanon Hospital.

[1] Wilkins, L.: The Diagnosis and Treatment of Endocrine Disorders in Childhood and Adolescence, ed. 1, Springfield, Ill., Charles C Thomas, Publisher, 1950, pp. 113, 115.

Because of the diagnosis of congenital goiter in this newborn infant consideration was given to the possibility of goitrogen ingestion by the mother during pregnancy. On inquiry it was ascertained that the mother had taken 300 mg. of propylthiouracil daily for a period of 10 months prior to the date of delivery. This had been prescribed by a physician for diarrhea thought to be due to ulcerative colitis. Information concerning ingestion of this drug had not been communicated to the attending obstetrician during pregnancy.

The infant was placed in an Isolette incubator and oxygen administered. After feedings, on a number of occasions, stridor and cyanosis became manifest but always subsided spontaneously within a few minutes. In general, improvement was progressive, so that at one week of age there was no longer any respiratory embarrassment after feedings. Formula intake, cry, skin color, temperature, muscular activity, stools, and urine output were normal at all times.

On Feb. 11, two days after birth, tracer studies were initiated after oral administration of 4 μc of radioactive iodine (I^{131}). Thyroid uptake at 5 hours was 77.3% of administered dose; at 24 hours and 48 hours the values were 78.6% and 72% respectively. Survey of the neck with a directional Geiger counter revealed that the radioisotope was localized in the neck mass previously described. This confirmed the clinical impression of great thyroid enlargement. Daily measurements over the mass were recorded until Feb. 24, 12 days after administration of the tracer dose. On that date the radioactivity in the thyroid, corrected for physical decay, was 47.4% of administered dose. On Feb. 14, three days after administration of I^{131}, 60 mg. of potassium thiocyanate were given by gastric tube. Measurements over the thyroid region were made four and eight hours later. These revealed only a slight decrease of I^{131} retention, from 78.8% to 69.7% at 8 hours.

On Feb. 9 (date of birth) x-ray studies disclosed the presence of a large neck mass causing tracheal compression (fig. 2*A*). Normal osseous centers were revealed in the wrists, knees, and feet in films taken on Feb. 16, 1954. On this date the serum protein-bound iodine level was 6 mcg. and the serum cholesterol level 155 mg. per 100 ml. The infant remained in the hospital for 22 days. During the first 12 days of life, despite adequate food intake, normal stools, and absence of vomiting, there was loss of weight from 7 lb., 14 oz. to 6 lb., 7 oz. (2,920 gm.), after which gain was progressive without change in formula. The thyroid mass diminished steadily in size, as was evident from physical and radiographic examinations. There was no clinical evidence of cretinism. On June 28, at age 4½ months, x-ray studies of the extremities revealed normal bone age. A second tracer study following oral administration of 4 μc of I^{131} revealed thyroid uptake of 2.7% at 5 hours and 2.5% at 24 hours. Physical examination on Nov. 10 at age 9 months disclosed only minimal right-sided thyroid enlargement. The infant was otherwise entirely normal, mentally and physically.

COMMENT

The goitrogenic effect of many antithyroid agents has been well established. Thus, the thiourea drugs, thiocyanate, various foods such as the Brassica family of plants (cabbage, turnip), and others have been well documented as goitrogens.[2] This action is believed to be dependent on the known hormonal relations between the thyroid gland and the anterior pituitary lobe. A decrease in the concentration of circulating thyroid hormone results in increased production of thyrotropic hormone by the anterior pituitary lobe, with resulting increased stimulation of the thyroid gland in all of its known functions, and hyperplasia and enlargement of the gland. Increased concentration of circulating thyroid hormone (hyperthyroidism, administration of thyroid) on the other hand has the inverse effect on the anterior pituitary lobe, decreasing its output of thyrotropic hormone. Whether the inhibitory action of an antithyroid agent is on the thyroid uptake of iodide (thiocyanate effect[3]) or on the synthesis of thyroid hormone (thiourea drugs[4]), the production and release of thyroid hormone are decreased. This decrease in circulating thyroid hormone results in hyperplasia and enlargement of the thyroid gland.

The fetal thyroid has been shown to begin functioning after 14 weeks of gestation.[5] At this time the gland becomes subject to the effect of maternally ingested propylthiouracil, which has been shown to traverse the placental barrier.[6] Reduced production of thyroid hormone by the mother may result in the fetus receiving less thyroxin than normally and this could contribute to the further compensatory stimulation of the fetal thyroid by its own anterior pituitary lobe. Since thyrotropic hormone probably does not pass through the placental barrier,[6a] increase of mother's thyrotropin production in all likelihood plays no part in congenital goiter.

Thiourea drugs block the enzymatic synthesis of thyroid hormone but do not affect the mechanism whereby the thyroid gland selectively takes up iodide from the plasma, as does thiocyanate. Administration of thiocyanate should result in discharge from the thyroid gland of I^{131} not yet organically bound, according to Stanbury.[7] This action of thiocyanate was not observed in the case reported. This may have been the result of either insufficient dosage of thiocyanate or the presence in the thyroid of only organically bound iodine. The I^{131} uptake in

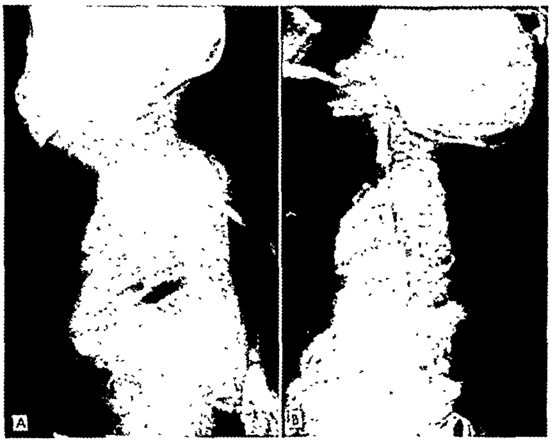


Fig. 2.—Roentgenograms showing *A*, large neck mass and tracheal distortion (Feb. 9, 1954); *B*, diminution in anteroposterior diameter of neck and normal configuration of trachea (March 1, 1954).

---

[2] Astwood, E. B.: The Natural Occurrence of Antithyroid Compounds as a Cause of Simple Goiter, Ann. Int. Med. **30**: 1087-1103 (June) 1949.

[3] Vanderlaan, J. E., and Vanderlaan, W. P.: The Iodide Concentrating Mechanism of the Rat Thyroid and Its Inhibition by Thiocyanate, Endocrinology **40**: 403-416 (June) 1947.

[4] Stanley, M. M., and Astwood, E. B.: The Accumulation of Radioactive Iodine by the Thyroid Gland in Normal and Thyrotoxic Subjects and the Effect of Thiocyanate on Its Discharge, Endocrinology **42**: 107-123 (Feb.) 1948.

[5] Chapman, E. M.; Corner, G. W., Jr.; Robinson, D., and Evans, R. D.: Collection of Radioactive Iodine by Human Fetal Thyroid, J. Clin. Endocrinol. **8**: 717-720 (Sept.) 1948.

[6] (*a*) Peterson, R. R., and Young, W. C.: The Problem of Placental Permeability for Thyrotrophin, Prophylthiouracil and Thyroxine in the Guinea Pig, Endocrinology **50**: 218-225 (Feb.) 1952. (*b*) Elphinstone, N.: Thiouracil in Pregnancy: Its Effect on the Fetus, Lancet **1**: 1281-1284 (June 27) 1953. Freiesleben, E., and Kjerulf-Jensen, K.: The Effect of Thiouracil Derivatives on Fetuses and Infants, J. Clin. Endocrinol. **7**: 47-51 (Jan.) 1947.

[7] Stanbury, J. B., and Hedge, A. N.: Study of Family of Goitrous Cretins, J. Clin. Endocrinol. **10**: 1471-1484 (Nov.) 1950.

this infant cannot with certainty be regarded as abnormal. Van Middlesworth has reported even higher uptakes in normal newborn infants, and he considers these values to be indicative of "physiological hyperthyroidism in the newborn." [8]

Although no surgical intervention for relief of tracheal compression was necessary in this case, when there is danger of asphyxia in congenital goiter relief may be obtained by tracheotomy or resection of the thyroid isthmus. The latter appears to us to be preferable in neonatal life.

The danger of serious thyroid hypofunction developing in an infant with congenital goiter due to mother's ingestion of propylthiouracil during pregnancy appears to us to be very real. Other authors have felt likewise.[9] On the other hand, Astwood [10] has stated that antithyroid therapy can safely be continued throughout pregnancy without harm to either mother or child. Thus far the infant under consideration has had a normal developmental pattern. We intend to continue to observe this patient, particularly with regard to thyroid status.

SUMMARY

Goiter in a newborn infant, causing moderate respiratory distress at birth, resulted from mother's ingestion of propylthiouracil during pregnancy. Shortly after birth tracer studies with radioactive iodine (I^{131}) revealed high thyroid uptake values. Since even higher uptakes have been reported in normal newborn infants, these data cannot be regarded as abnormal. Fortunately, thyroid enlargement regressed progressively, and at one week of age there was no longer any respiratory embarrassment. The subsequent course of the infant has been one of normal physical and mental development.

251 Seaman Ave. (Dr. Aaron).

[8] Van Middlesworth, L.: Radioactive Iodide Uptake of Normal Newborn Infants, A. M. A. Am. J. Dis. Child. **88**: 439-442 (Oct.) 1954.

[9] Hepner, W. R., Jr.: Thiourea Derivatives and the Fetus: Review and Report of Case, Am. J. Obst. & Gynec. **63**: 869-874 (April) 1952. Hone, G. M., and Magarey, I.: Cretinism Associated with Methyl Thiouracil Therapy, M. J. Australia **2**: 524-525 Oct. 30) 1948. Davis, L. J., and Forbes, W.: Thiouracil in Pregnancy: Effect on Foetal Thyroid, Lancet **2**: 740-742 (Dec. 8) 1945. Goldsmith, E. D.; Gordon, A. S., and Charipper, H. A.: An Analysis of the Effects of Continued Thiourea Treatment in Pregnancy and on the Development of the Offspring in the Rat, Am. J. Obst. & Gynec. **49**: 197-206 (Feb.) 1945.

[10] Astwood, E. B.: The Use of Antithyroid Drugs During Pregnancy, J. Clin. Endocrinol **11**: 1045-1056 (Oct.) 1951.

Mitral Stenosis.—Disease of the mitral valve is the commonest manifestation of chronic rheumatic heart disease, and frequently the valve becomes sufficiently damaged so that significant stenosis occurs. This is a slowly developing process. Walsh and Bland have shown that it may take from five to 20 years for the clearcut clinical picture of mitral stenosis to develop after an initial attack of rheumatic fever, and in Bland and Jones' 20-year follow-up of patients with rheumatic fever, it is clear that mitral stenosis usually develops insidiously many years after rheumatic fever. In a total experience of about 850 operations on mitral stenosis, Harken and Ellis have had only nine patients under 20, the youngest being 18, in spite of the fact that the maximum incidence for rheumatic fever is between five and 15 years. In about a half of the adult patients with this disorder, no history suggesting rheumatic fever in the past is obtainable. It is apparent, therefore, that we do not yet understand the pathologic conditions that lead to the tight mitral stenosis found at operation and postmortem.—Ellis, Laurence B., M.D., The Selection of Patients with Mitral Stenosis for Valvular Surgery, *American Practitioner and Digest of Treatment*, August, 1955.

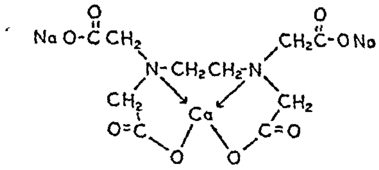
COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

Monographs and supplemental statements on drugs that appear in this column have been authorized by the Council for publication and inclusion in New and Nonofficial Remedies. They are based upon the evaluation of available scientific data and reports of investigations.

R. T. STORMONT, M.D., *Secretary.*

Edathamil Calcium-Disodium.—$C_{10}H_{12}CaN_2Na_2O_8$.—M.W. 374.29.—Calcium disodium (ethylenedinitrilo) tetraacetate.—Calcium disodium ethylenediaminetetraacetate.—The structural formula of edathamil calcium-disodium may be represented as follows:



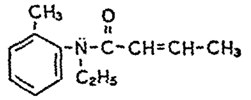
Actions and Uses.—Edathamil calcium-disodium is a cyclic complex chemical that exchanges its calcium for lead ions in the blood to form a more stable, virtually nonionic, water-soluble lead complex that is promptly excreted intact in the urine. It is therefore useful for the treatment of plumbemia in acute lead poisoning and for lead encephalopathy. It may also be used in cases of chronic lead poisoning if plumbemia is demonstrable. In vitro, the nearly water-insoluble acid, edathamil, forms more soluble salts with monovalent cations, which in turn combine with multivalent cations to form highly water-soluble, almost completely nonionic complexes, wherein each cation is joined by ordinary and coordinate valences. The compound formed from a monovalent cation is called a salt and the relatively stable complex formed from the further addition of a multivalent cation is referred to as a chelate; thus: edathamil calcium-disodium is the calcium chelate of the disodium salt of the acid, edathamil. In vitro, the displacement of calcium by lead to form the lead chelate is dependent upon the greater stability of the metallic complex. In vivo, the calcium-lead exchange reaction further depends upon the stronger bonds formed by the naturally occurring protein complexes of copper, iron, and cobalt in the body, which otherwise would be capable of displacing calcium. The relative stability of the calcium chelate is attributable to the strong affinity of the acid and its sodium salts for calcium, which saturates the complex. Thus, the calcium chelate retains its ability to entrap lead without producing a negative calcium balance. The resulting chelate of virtually nonionized lead serves to detoxify as well as to provide for excretion of that element.

Edathamil, its salts, and its chelates probably are not metabolized by the body. When salts of the acid are injected into normal warm-blooded animals, the calcium chelate is most commonly formed and most rapidly excreted intact in the urine. Intravenous injection of sodium salts thus can result in depletion of ionized calcium from the blood. If the rate of injection of sodium edathamil is sufficiently rapid, the rate of mobilization of calcium from the body reserves is exceeded, and hypocalcemic tetany may result. The calcium chelate has a low order of toxicity in experimental animals. There is a relatively wide margin between the fatal dose in animals and the corresponding therapeutic dose in man. Laboratory studies of animals receiving large doses have revealed no abnormalities, and clinical laboratory observations have shown no evidence of hematological or renal damage.

Dosage.—Edathamil calcium-disodium is administered by intravenous drip in either isotonic sodium chloride solution or 5% dextrose solution in a concentration not to exceed 3%, by diluting 5 cc. of a 20% solution (1 gm.) to 33 cc. The maximum dose per 4.5 kg. (10 lb.) of body weight is 0.17 gm. per hour, 0.33 gm. per day, or 1.67 gm. per week. The maximum dose per course of treatment is 2.5 gm. per 4.5 kg. (10 lb.) of body weight. It is advisable not to exceed two such courses, allowing seven days of rest between them. Interrupted courses are considered preferable to continuous therapy, and they should be in accordance with demonstrable increased titer of lead in the blood. A finding of more than 0.05 mg. of lead per 100 cc. of whole blood or 0.1 mg. per liter of a 24 hour specimen of urine is considered pathognomonic of lead poisoning.

Riker Laboratories, Inc., cooperated by furnishing scientific data to aid in the evaluation of edathamil calcium-disodium.

Crotamiton.—$C_{13}H_{17}NO$.—M.W. 203.27.—N-Ethyl-*o*-crotonotoluide.—The structural formula of crotamiton may be represented as follows:



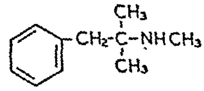
Actions and Uses.—Crotamiton is a sarcopticide useful for topical application in the treatment of scabies. Although it exhibits some bacteriostatic and fungistatic properties, there is inadequate evidence at present to justify claims for such action or for use in place of recognized local anti-infective agents when these may be indicated for the management of secondary infection.

Sensitivity or intolerance to crotamiton itself has been rarely encountered; mild erythema observed in some cases has been attributed to its cream base. Although crotamiton apparently has a low index of sensitization, physicians should be aware that such reactions may be encountered. In the presence of acute vesicular dermatitis crotamiton should not be used, for it may produce a burning sensation and act as a primary irritant. Crotamiton is of low toxicity in animals. Systemic effects have not been observed clinically.

Dosage.—Crotamiton is applied topically in a cream or lotion base containing 10% of the agent. In the treatment of scabies, it is applied to the skin by gentle massage in an amount sufficient to cover the entire body (excluding the head); 30 gm. is usually sufficient for a single application. Preliminary bathing is not necessary, but if this is done the skin should be thoroughly dry before applying crotamiton. A second application 24 hours later is advised to assure complete eradication of the mites; occasionally, a third application may be required. A cleansing bath should be taken 48 hours after the last application and bed and body clothing should be completely changed to prevent reinfection. Other members of the family should be examined for the disease.

Geigy Pharmaceuticals, Division of Geigy Chemical Corporation, cooperated by furnishing scientific data to aid in the evaluation of crotamiton.

Mephentermine.—$C_{11}H_{17}N$.—M.W. 163.26.—N,α,α-Trimethylphenethylamine.—The structural formula for mephentermine may be represented as follows:

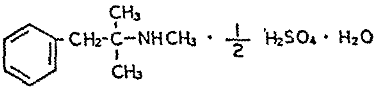


Actions and Uses.—Mephentermine is a sympathomimetic amine that shares the vasoconstrictor action common to such agents. It is sufficiently volatile for inhalation to produce vasoconstriction of the congested nasal mucous membrane, being about one-half as active in this respect as amphetamine. Mephentermine is less toxic than amphetamine when injected into experimental animals, and its pressor action resembles that of ephedrine rather than epinephrine; its cerebral stimulant action is much less than that of amphetamine and methamphetamine. It does not significantly relax smooth muscle. Local application of a 1% solution dilates the pupil. Mephentermine is used only by inhalation as a nasal decongestant to provide temporary relief in the treatment of acute or chronic rhinitis, allergic or nonallergic rhinitis, vasomotor rhinitis, and sinusitis.

Dosage.—Mephentermine is applied to the nasal mucosa by means of an inhaler containing a total of 250 mg. of the drug. Two inhalations through each nostril are recommended as a single dose. This provides a variable amount chiefly dependent upon the depth of inhalation. The contents of the inhaler is sufficient to last about three months from the time of initial use.

Wyeth Laboratories, Inc., cooperated by furnishing scientific data to aid in the evaluation of mephentermine.

Mephentermine Sulfate, U. S. P.—$C_{22}H_{34}N_2.H_2SO_4.$-$2H_2O$. — M.W. 460.64. — N,α,α-Trimethylphenethylamine sulfate.—The structural formula for mephentermine sulfate may be represented as follows:



Actions and Uses.—Mephentermine sulfate is a soluble salt of a sympathomimetic amine base and exhibits the vasoconstrictor action characteristic of such compounds. The solution is applied topically as a nasal decongestant in the treatment of vasomotor rhinitis, acute or chronic rhinitis, allergic or nonallergic rhinitis, and sinusitis. For other actions, see the monograph on mephentermine.

Dosage.—A 0.5% solution of the drug in isotonic sodium chloride solution is topically applied to the nasal mucosa by means of a dropper. The recommended schedule is two or three drops in each nostril every 4 hours or as required to temporarily relieve nasal congestion.

Wyeth Laboratories, Inc., cooperated by furnishing scientific data to aid in the evaluation of mephentermine sulfate.

THE JOURNAL
OF THE AMERICAN MEDICAL ASSOCIATION
Edited Under the Direction of the Board of Trustees

Editor and Managing Publisher . . AUSTIN SMITH, M.D.
Associate Editor . . . . JOHNSON F. HAMMOND, M.D.
Editor for Medical Literature Abstracts . GEORGE HALPERIN, M.D.
Assistant Editor . . . . WAYNE G. BRANDSTADT, M.D.

Subscription price . . Fifteen dollars per annum in advance
Cable Address . . . . "Medic, Chicago"

MEETINGS OF THE HOUSE OF DELEGATES

The policies of the American Medical Association are determined by the House of Delegates. Twice a year it meets and considers the reports and resolutions introduced by members of the House, Board of Trustees, special committees, and standing committees. There is no body more influential in American medicine nor more democratic in action. All resolutions and all reports after presentation are referred to a committee for study, during which time anyone may appear before the committee to ask questions or state opinions. After the hearings a committee prepares its recommendations, which are studied by the House and accepted, modified, or rejected. Even during this time of deliberation by the House, members of the House, or others if granted permission by the Speaker, may comment on the proposal.

During the past several years there has been an increasing number of physician members of the A. M. A. who have attended meetings of the House and of its reference committees. This has resulted in a better appreciation of how the policies of the Association are formed, but, of equal importance, it also has provided additional information for the committee members. If no one bothers attending a committee meeting there should be no complaint if the committee lacks important information and errs in its decision. Most of the committee members are well informed in the subjects that are presented to them for study, but even so they appreciate all the help they can receive. Undoubtedly there are many members of the Association who disagree on occasion with a decision of the House of Delegates, but how many of these critics have taken the time to watch the House in action or have volunteered comments even though they have been present for the meeting of the Association. The scientific program of the Association is important and helpful to the man in practice, but so are the many problems facing the House at each session. In fact, during the next few years, as has been particularly true for the last decade, the so-called nonscientific problems may have a more far-reaching influence on medical practice than the development of a new drug or surgical technique.

At the forthcoming meeting in Boston, November 29 to December 2, there will be opportunity for members of the Association to observe firsthand how their organization functions. They should make use of this opportunity, and if they cannot be present in Boston they can be at subsequent meetings in Chicago, Seattle, New York, San Francisco, or Atlantic City, or wherever the Association may meet during the next several years. Letters between physicians and elected officials of the Association can be helpful, but personal contact usually is far more helpful to everyone.

INTERNATIONAL CERTIFICATES OF VACCINATION

During 1954, 452,049 persons traveled outside the United States, not counting the thousands who daily cross the Canadian or Mexican borders. The International Certificates of Vaccination form that physicians are called on to complete whenever a person is vaccinated for international travel is an important document. A person can be quickly processed by quarantine officers here and abroad when his vaccination certificate contains complete information and is properly authenticated.

The vaccinating physician can help in this procedure by always using the International Certificates of Vaccination form to record complete immunization data and by instructing the prospective traveler to have the certificate authenticated by the local or state health officer. The health officer can speed the process by using his official stamp or seal to authenticate the certificate. If the health officer does not have either, the United States Public Health Service suggests that he have a stamp made that includes the term "health officer" and the name and address of the health department. The act of applying the stamp to the certificate is required by international agreement for the purpose of attesting to the fact that the immunizing physician is a practicing physician within the area, thus reducing the possibility of fraudulent certificates being issued. The certificate is not valid without this approved stamp, and without it the traveler may be exposed to delay or other difficulties.

The International Certificates of Vaccination form is given to prospective travelers with the passport application. If the person is traveling on a tourist card he may obtain a certificate from the local health department or purchase one from the Superintendent of Documents, Government Printing Office, Washington, D. C., for 5 cents. Most travel agencies and automobile clubs also have these certificates. The cooperation of all those concerned with the issuance of a valid certificate to the traveler will assist in helping the United States to maintain its present morbidity rate of zero for smallpox in spite of the disease being present in other areas of the world.

THE PRESIDENT'S PAGE

A MONTHLY MESSAGE

We, the American Medical Association, which after all is the American medical profession, have often been severely criticized because it is said that we are always against something and that we never propose anything constructive in a legislative way. To those of us who have had experience with legislators and legislation, particularly at the national level, this has sometimes seemed to be true. Yet there really has been little we could do about it for the simple reason that we represent an extremely conservative organization of individual thinkers and doers and it is often difficult to arrive at a unanimity of minds even over the conference table. It would also be a foolish thing for us to sponsor legislation of any kind because of the dangers of the amendments that might be tacked on an A. M. A.-sponsored bill that would either nullify the intent of the bill itself or because of the bill's popularity might create a law that we would regret. Such a bill, amended, would be forever tagged as A. M. A.-sponsored legislation. This would of course be incorrect but would serve as high-powered ammunition in the hands of those people who vocally and violently oppose the free enterprise system. There have been bills on health matters written and presented by some legislators without once consulting representatives of the A. M. A. Many of these bills are so worded that they are ambiguous. We know what is in the minds of the legislator or even at times the administration and how the bill would be interpreted by the authorities who have sponsored the bill, but some future Congress or administration might be tempted to make an entirely different interpretation from that originally intended. With the Washington Office filled with medical and health information available to those who wish to write health legislation it seems incredible that it is not more often used for the purpose for which it was created; namely, to supply information to anyone on health matters. Good health legislation is vitally important to our people. It should be written in clear unmistakable language that is not subject to dual interpretation. It should protect both the public, the receiver of medical services, and the physicians, the purveyors of the services.

Every bill that is written is carefully scrutinized by our office in Washington, by the Chicago office of the A. M. A., and by our Committee on Legislation. After careful reading and study the decision is made to support or to oppose. We also take no action for or against many legislative proposals after thorough discussions. Quite frequently we are for certain bills in principle, and often we go before congressional committees to suggest changes in bills when we feel that such changes are necessary. This is not only our right but our duty. It is likewise the duty of all groups and individual citizens. It is our particular duty when any form of health legislation is proposed.

By tradition the medical profession has been trained to move ahead cautiously and slowly; each progressive step in our scientific work is examined and reexamined before we accept it. This training of necessity makes us extremely cautious in supporting legislation that it seems to us might not be as good as the legislative experts think it will. We are individualists, now, and I am afraid forevermore, but we no longer take our duties as citizens lightly and we feel that we have the right and duty to express our opinions before congressional committees without being abused or slandered. Too often chairmen and members of committees have had a field day at the expense of decent American physicians appearing before them, particularly if we are opposing someone's favorite bill. These men are our representatives, and, whether they agree or disagree with us, they serve in their positions as elected representatives of all of us who are American citizens. They should be our servants, not try to be our masters.

It therefore behooves every physician to try and know what legislation he wants the A. M. A. to support or oppose. We, your elected officers, have very receptive and open minds on the subject. We do the very best we can when these various legislative problems arise. We try our best to present that which we honestly and sincerely believe to be the wish and desire of the majority of our members. I often think how much time those of us who are your elected officials spend trying our best to represent you in the nation's capitol. I wonder if it would not be a good idea for some of the rest of us to occasionally go to Washington as appointed representatives of the Association. A good idea might be to have committees composed of the family physicians of the senators and representatives to appear for or against some of these bills. Congressmen seem to respect their own doctors above everyone else, and they might listen to them if they were to appear before them. Is it not worth trying?

Elmer Hess, M.D.,
Erie, Pa.

HISTORICAL AND METROPOLITAN BOSTON

Metropolitan and historical Boston, with its more than 2,500,000 people, is one of the most interesting areas in the world to visit. Founded in 1630 by English Puritans of the Massachusetts Bay Colony, it retains today the charm of both the old world and the new. The crooked and narrow ways that once were cow paths are still there amidst modern, broad, and beautiful avenues, and skyscrapers have been built around, but not over, the many historical shrines. Boston has been affectionately called "the Athens of America," "the city of yesterday and today," and "the hub of the universe," because of the cultural, spiritual, commercial, and historical assets present in this area. There is enough to see and to do to keep one busy for days. There is Boston Common, a tract of some 50 acres in the heart of the city, which was set aside in 1634 for "feeding the cattell" and "a trayning field." There in colonial times British troops were quartered, and from what is now Park Square the British set out for Lexington, only a short distance by automobile along the route that Paul Revere rode to warn the farmers that the British were coming. The home in Boston where Paul Revere lived for 30 years is open to the public on weekdays from 10 to 4, as is also Old North Church, in whose spire lanterns were hung to signal Revere that the British were coming. Here is the Old South Meeting House, where citizens gathered to plan the Boston Tea Party. Here is Fanueil Hall, "the cradle of Liberty," and the burying ground where Paul Revere, John Hancock, Benjamin Franklin's parents—victims of the Boston massacre, and other famous persons are buried. Bunker Hill Monument marks the site of the battle on June 17, 1775. Here are the homes of Longfellow, James Russell Lowell, John Adams, and John Quincy Adams. A few miles away in Salem is the House of Seven Gables and near Concord the Wayside Inn, owned by Nathaniel Hawthorne and later the girlhood home of Louisa M. Alcott. Across from the City Hall Annex in Boston a tablet marks the site of the old printing office where Benjamin Franklin learned his trade. A few miles from Boston are many other historic places—Plymouth Rock; Cape Cod; the fishing port of Gloucester; Marblehead, a typical old New England town. In Mount Auburn Cemetery in Cambridge, sometimes called the poets' cemetery, are buried Oliver Wendell Holmes, Henry Wadsworth Longfellow, James Russell Lowell, Charles Sumner, Edward Everett, Louis Agassiz, and Phillips Brooks.

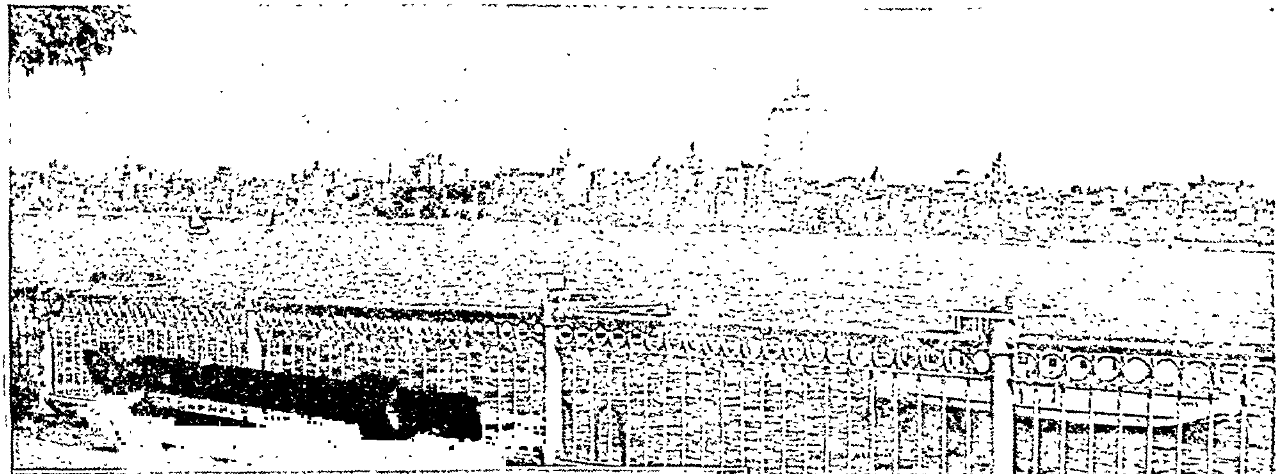
Boston has been said to be the cultural center of America. It is the only industrial city east of the Pacific Coast in which more than 50% of the adult population has attended high school. Among its 200 schools, colleges, and universities are Harvard, Massachusetts Institute of Technology, Boston University, Wellesley, Radcliffe, Tufts, the New England Conservatory of Music, the Massachusetts School of Art, Northeastern, and Boston College. There are 224 public libraries with more than 4 million books. The Boston Public Library alone has 2 million volumes. The Boston Medical Library has one of the finest collections of 16th century medical documents and curios in existence. American education is said to have originated here in 1635 when the oldest free public school in the nation, the Boston Public Latin School, was founded.

Boston has three medical schools, Harvard, Tufts, and Boston University School of Medicine; many research institutes; and numerous nurses' training facilities. Here was organized the first local health department in America, with Paul Revere as its first chairman. The first newspaper was published in Boston in 1690, the first railway built in 1825 and the first subway in 1895; the world's first telephone call was made here in 1876; and the first successful surgical operation performed with the patient under ether anesthesia was done in the Massachusetts General Hospital in 1846.

Out of the reknown Boston Symphony Orchestra have grown the Boston Pops Orchestra, which holds outdoor concerts on the Charles River Esplanade; the Boston Symphony School at Tanglewood in the Berkshires; and the New England Opera Theatre. Many art clubs flourish in this area. The Boston Museum of Fine Arts for nearly 80 years has had one of the nation's most comprehensive collections.

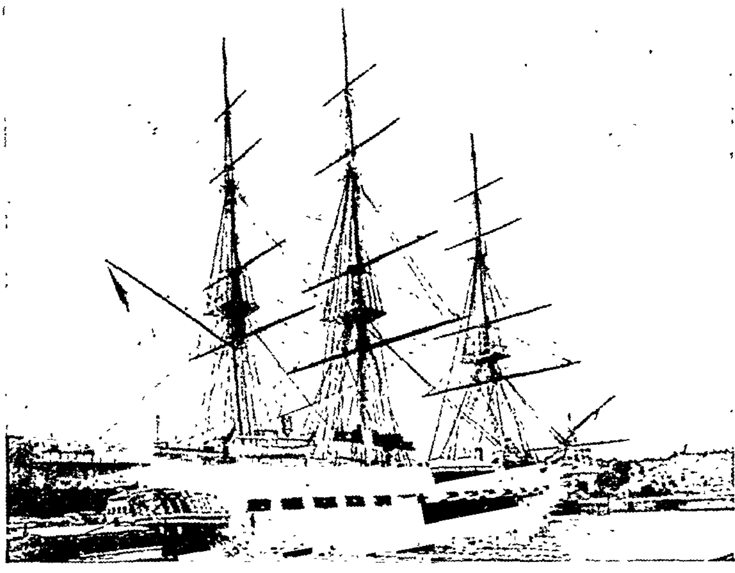
Boston is the world's leading leather market. About one-third of the fresh and frozen fish consumed in the United States comes from metropolitan Boston, some of the fishing centers being Gloucester, New Bedford, and Cape Cod. Boston is the wool center of the world. Through its docks and railyards and in its warehouses more than 70% of all the wool consumed in the United States is bought and sold.

The average mean temperature is 57.6 degrees. The average relative humidity is 68%, and 65% of the days are partially or fully sunlit. On arrival by air, train, bus, or motorcar, many fine restaurants await the visitor. While sea food is a specialty, all types of delicacies prepared by old masters are available. Come to the Boston Clinical Meeting and enjoy also the food and entertainment.

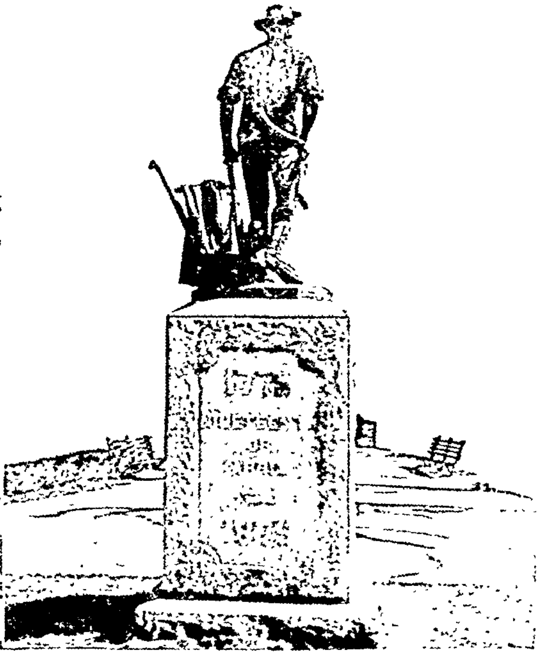


View of Boston across the Charles River from Cambridge.

Left, statue of Paul Revere. In the background is the Old North Church, where lanterns were hung to inform Paul Revere that the British were on their way to Lexington and Concord.

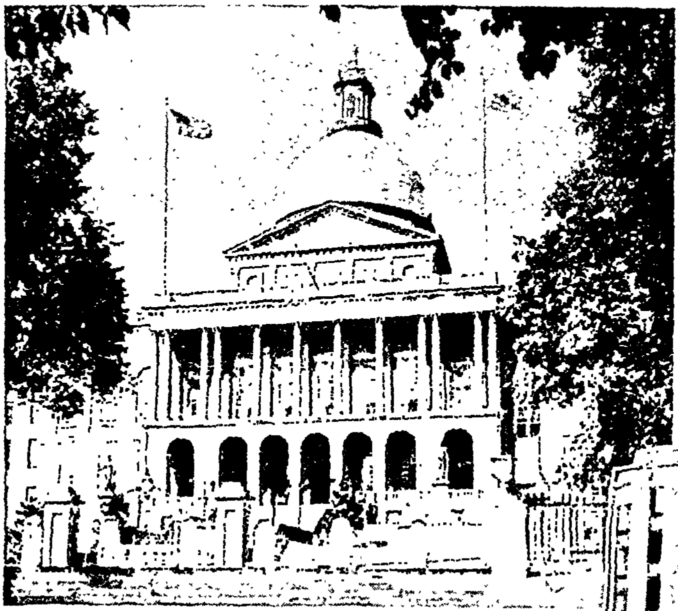


Below left, "Old Ironsides," which fought nobly in the War of 1812 and now rests in the Charlestown Navy Yard in Boston.



Below, statue of the Minute Man in Concord, where "the first shot that was heard around the world" was fired.

HISTORICAL AND METROPOLITAN BOSTON

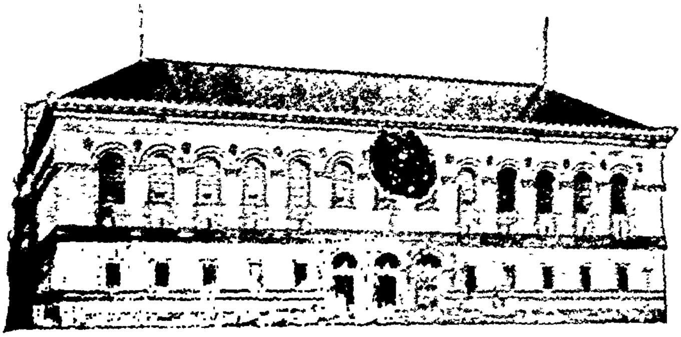


Above, the golden-domed capitol of Massachusetts on Beacon Hill, former site of residence of John Hancock, first signer of the Declaration of Independence.

Right, the Massachusetts General Hospital.

Right, scene along the Boston Common, a tract containing nearly 50 acres, where the British soldiers mustered before the Battle of Bunker Hill.

Below, the Boston Public Library, with a 2 million volume collection, is also famous for its mural paintings.



THE CLINICAL MEETING

AMERICAN MEDICAL ASSOCIATION

Boston, Nov. 29—Dec. 2, 1955

OFFICIAL CALL

TO THE OFFICERS AND MEMBERS OF THE AMERICAN MEDICAL ASSOCIATION

The Clinical Meeting of the American Medical Association will be held in Boston, Nov. 29-Dec. 2, 1955.

The House of Delegates will convene at 10 a. m., Tuesday, Nov. 29, in the Ballroom of the Hotel Statler. In the House the representation of the various constituent associations for the clinical meeting in 1955 is as follows:

Alabama	2
Arizona	1
Arkansas	2
California	13
Colorado	2
Connecticut	3
Delaware	1
District of Columbia	2
Florida	3
Georgia	3
Idaho	1
Illinois	10
Indiana	4
Iowa	3
Kansas	2
Kentucky	2
Louisiana	2
Maine	1
Maryland	2
Massachusetts	6
Michigan	6
Minnesota	4
Mississippi	2
Missouri	4
Montana	1
Nebraska	2
Nevada	1
New Hampshire	1
New Jersey	6
New Mexico	1
New York	18
North Carolina	3
North Dakota	1
Ohio	8
Oklahoma	2
Oregon	2
Pennsylvania	11
Rhode Island	1
South Carolina	2
South Dakota	1
Tennessee	3
Texas	7
Utah	1
Vermont	1
Virginia	2
Washington	3
West Virginia	2
Wisconsin	4
Wyoming	1
Alaska	1
Hawaii	1
Isthmian Canal Zone	1
Puerto Rico	1

The scientific sections of the American Medical Association, the Medical Corps of the Army, the Medical Corps of the Navy, the Medical Corps of the Air Force, the Public Health Service, and the Veterans Administration are entitled to one delegate each.

The scientific meetings and the scientific and technical exhibits will be held in Mechanics Hall.

The Opening General Session will start at 10:30 a. m., Tuesday, Nov. 29.

The Scientific Program will open Tuesday, Nov. 29, starting at 1:00 p. m., and will continue throughout the afternoon of that day. The program will continue on Wednesday and Thursday mornings and afternoons, Nov. 30 and Dec. 1, and on Friday morning, Dec. 2, closing at 12 noon.

The Registration Bureau, which will be located in Mechanics Hall, will be open from 8:00 a. m. until 5:30 p. m., Tuesday, Wednesday, and Thursday, Nov. 29 to Dec. 1, and from 8:00 a. m. to 12:00 noon, Friday, Dec. 2.

Elmer Hess, President.
E. Vincent Askey, Speaker, House of Delegates.
George F. Lull, Secretary.

OFFICERS OF THE AMERICAN MEDICAL ASSOCIATION, 1955-1956

President—Elmer Hess, Erie, Pa.

President-Elect—Dwight H. Murray, Napa, Calif.

Vice President—Millard D. Hill, Raleigh, N. C.

Secretary and General Manager—George F. Lull, Chicago.

Assistant Secretary—Ernest B. Howard, Chicago.

Treasurer—J. J. Moore, Chicago.

Speaker, House of Delegates—E. Vincent Askey, Los Angeles.

Vice Speaker, House of Delegates—Louis M. Orr, Orlando, Fla.

Editor—Austin Smith, Chicago.

Business Manager—Thomas R. Gardiner, Chicago.

Board of Trustees—J. P. Price, Florence, S. C., 1956; J. R. Reuling, Bayside, N. Y., 1957; J. R. McVay, Kansas City, Mo., 1957; E. S. Hamilton, Kankakee, Ill., 1958; G. Gundersen, Chairman, LaCrosse, Wis., 1958; D. B. Allman, Atlantic City, N. J., 1959; F. J. L. Blasingame, Wharton, Texas, 1959; L. W. Larson, Bismarck, N. D., 1960; T. P. Murdock, Meriden, Conn., 1960; the President and the President-Elect.

STANDING COMMITTEES OF THE HOUSE OF DELEGATES

Judicial Council—W. F. Donaldson, Bakerstown, Pa., 1956; H. L. Pearson Jr., Chairman, Miami, Fla., 1957; G. A. Woodhouse, Pleasant Hill, Ohio, 1958; J. M. Hutcheson, Richmond, Va., 1959; L. A. Buie, Rochester, Minn., 1960; G. F. Lull, Secretary, Chicago.

Council on Medical Education and Hospitals—G. A. Caldwell, New Orleans, 1956; J. W. Cline, San Francisco, 1956; F. D. Murphy, Lawrence, Kan., 1957; H. G. Weiskotten, Chairman, Skaneateles, N. Y., 1957; V. Johnson, Rochester, Minn., 1958; L. S. McKittrick, Brookline, Mass., 1958; C. T. Stone Sr., Galveston, Texas, 1959; W. A. Bunten, Cheyenne, Wyo., 1959; J. M. Faulkner, Boston, 1960; H. English, Danville, Ill., 1960; E. L. Turner, Secretary, Chicago.

Council on Medical Service—C. E. Wertz, Buffalo, 1956; R. L. Novy, Detroit, 1957; R. B. Chrisman Jr., Miami, Fla., 1958; A. C. Scott Jr., Temple, Texas, 1958; J. D. McCarthy, Chairman, Omaha, 1959; H. B. Mulholland, Charlottesville, Va., 1960; W. B. Martin, Norfolk, Va., E. Hess, Erie, Pa.; D. B. Allman, Atlantic City, N. J.; Mr. T. A. Hendricks, Secretary, Chicago.

Council on Constitution and Bylaws—L. A. Buie, Chairman, Rochester, Minn., 1956; J. Stevenson,* Tulsa, Okla., 1957; S. H. Osborn, Hartford, Conn., 1958; F. S. Winslow, Rochester, N. Y., 1959; B. E. Pickett Sr., Carrizo Springs, Texas, 1960; E. S. Hamilton, Kankakee, Ill.; the President and the Speaker and Vice Speaker of the House of Delegates.

STANDING COMMITTEES OF THE BOARD OF TRUSTEES

Council on Pharmacy and Chemistry—C. A. Dragstedt, Chicago, 1955; I. Starr, Philadelphia, 1955; J. Hayman, Boston, 1955; E. M. K. Geiling, Chicago, 1956; E. M. Nelson, Washington, D. C., 1956; H. K. Beecher, Boston, 1956; T. Sollmann, Chairman, Cleveland, 1957; J. P. Leake, Washington, D. C., 1957; A. C. Curtis, Ann Arbor, Mich., 1957; W. C. Cutting, San Francisco, 1958; O. O. Meyer, Madison, Wis., 1958; M. H. Seevers, Ann Arbor, Mich., 1958; T. M. Brown, Washington, D. C., 1958; J. Stokes Jr., Philadelphia, 1959; P. H. Long, Brooklyn, 1959; W. G. Workman, Bethesda, Md., 1959; H. Eagle, Bethesda, Md., 1959; R. T. Stormont, Secretary, Chicago.

Council on Scientific Assembly—L. W. Larson, Bismarck, N. D., 1955; C. A. Lincke, Carrollton, Ohio, 1955; M. E. DeBakey, Houston, Texas, 1956; S. P. Newman, Denver, 1957; J. R. McVay, Kansas City, Mo., 1957; H. R. Viets, Boston, 1958; C. H. Phifer, Chicago, 1958; S. P. Reimann, Philadelphia, 1959; A. McMahon, Chairman, St. Louis, 1959; T. G. Hull, Secretary, Chicago.

Council on Rehabilitation—O. Glasser, Cleveland, 1955; S. Warren, Boston, 1955; D. Vail, Chicago, 1955; F. R. Ober, Boston, 1956; D. M. Lierle, Iowa City, 1956; W. W. Coblentz, Washington, D. C., 1957; G. M. Piersol, Philadelphia, 1957; M. A. Bowie, Swarthmore, Pa., 1958; A. L. Watkins, Boston, 1958; W. J. Zeiter, Cleveland, 1958; F. H. Krusen, Chairman, Rochester, Minn., 1959; A. C. Cipollaro, New York, 1959; F. Butte, Dallas, Texas, 1959; R. E. DeForest, Secretary, Chicago.

Council on Foods and Nutrition—C. A. Smith, Boston, 1955; R. Jackson, Columbia, Mo., 1956; G. R. Cowgill, New Haven, Conn., 1956; W. H. Griffith, Los Angeles, 1957; W. J. Darby, Nashville, Tenn., 1958; C. A. Elvehjem, Madison, Wis., 1958; J. B. Youmans, Nashville, Tenn., 1958; L. A. Maynard, New York, 1959; G. A. Goldsmith, New Orleans, 1959; C. S. Davidson, Chairman, Boston, 1959.

Council on Industrial Health—L. E. Hamlin, Chicago, 1955; R. A. Kehoe, Cincinnati, 1955; W. P. Shepard, Chairman, New York, 1956; M. N. Newquist, New York, 1956; P. S. Richards, Salt Lake City, 1957; J. H. Sterner, Rochester, N. Y., 1957; R. T. Johnstone, Los Angeles, 1958; L. C. McGee, Wilmington, Del., 1958; C. F. Shook, Toledo, Ohio, 1958; J. N. Gallivan, East Hartford, Conn., 1959; V. C. Baird, Houston, Texas, 1959; O. A. Sander, Milwaukee, 1959; C. M. Peterson,* Secretary, Chicago.

---

* Deceased.

Council on National Defense—A. A. Brindley, Toledo, Ohio, 1955; C. P. Hungate, Kansas City, Mo., 1955; S. L. Warren, Los Angeles, 1956; H. B. Wright, Cleveland, 1956; R. A. Benson, Bremerton, Wash., 1957; P. H. Long, Brooklyn, 1957; R. L. Sensenich, South Bend, Ind., 1958; H. C. Lueth, Evanston, Ill., 1958; H. S. Diehl, Chairman, Minneapolis, 1959; R. L. Meiling, Columbus, Ohio, 1959; Mr. F. W. Barton, Secretary, Chicago.

Council on Rural Health—F. A. Humphrey, Ft. Collins, Colo., 1955; N. H. Gardner, E. Hampton, Conn., 1955; A. T. Stewart, Lubbock, Texas, 1956; H. A. Randel,* Fresno, Calif., 1956; W. J. Weese, Ontario, Ore., 1957; W. A. Wright, Williston, N. D., 1957; F. S. Crockett, Chairman, Lafayette, Ind., 1958; G. F. Bond, Bat Cave, N. C., 1958; C. S. Mundy, Toledo, Ohio, 1959; C. R. Henry, Little Rock, Ark., 1959; Mrs. A. Hibbard, Secretary, Chicago.

Council on Mental Health—F. M. Forster, Washington, D. C., 1955; H. T. Carmichael, Chicago, 1956; M. R. Kaufman, New York, 1957; L. H. Bartemeier, Chairman, Baltimore, 1958; W. H. Baer, Peoria, Ill., 1958; F. J. Gerty, Chicago, 1958; L. H. Smith, Philadelphia, 1959; G. E. Gardner, Boston, 1959; R. J. Plunkett, Secretary, Chicago.

Committee on Legislation—R. B. Chrisman Jr., Miami, Fla., 1955; J. L. Ludwig, Los Angeles, 1955; D. B. Allman, Chairman, Atlantic City, N. J., 1956; M L. Phelps, Denver, 1956; J. D. McCarthy, Omaha, 1957; J. E. McDonald, Tulsa, Okla., 1957; D. G. Smith, Nashua, N. H., 1958; H. English, Danville, Ill., 1958; C. Bailey, Harlan, Ky., 1959; C. L. Palmer, Harrisburg, Pa., 1959; Mr. R. G. Van Buskirk, Secretary, Chicago.

The Secretary, Assistant Secretary and Editor are ex officio members of all Standing Committees.

* Deceased.

REGISTRATION

The Registration Bureau will be located at the entrance to Mechanics Hall and will be open all day Tuesday, Wednesday, and Thursday, Nov. 29 and 30, and Dec. 1, and until noon on Friday, Dec. 2.

An information bureau will be operated in connection with the Registration Bureau.

Who May Register

Members—Active, Affiliate, Associate, Service, and Honorary—and invited guests may register for attendance at meetings.

Active members in good standing in the American Medical Association are those members of component county medical societies and of constituent state and territorial medical associations whose names are officially reported for enrollment to the Secretary of the American Medical Association by the secretaries of the constituent medical associations and who have paid their annual American Medical Association membership dues, which this year are $25, to be paid through their constituent medical associations.

Residents, interns, senior medical students, and registered nurses will find special registration cards to fill in on tables near the registration windows. These should be presented, at the window indicated, together with a card or letter signed by the superintendent of the hospital where they are located, or the dean of the medical school they attend.

Register Early

The Registration Bureau will be open at 8:00 a. m., on Tuesday, Nov. 29. Members are urged to take advantage of this early opening.

The names and Boston addresses of those who register will be included in the *Daily Bulletin,* and this will enable visiting physicians to find friends who have registered.

Suggestions That Will Facilitate Registration

Members who have Advance Registration Cards with pocket cards can be registered with little or no delay. They should fill in the following information on the cards prior to their registration:

Hotel, number of guests, and signature.

Present filled in card with your American Medical Association Membership pocket card at windows marked "Advance Registration." Your pocket card will be returned to you, and you will receive a badge and a copy of the Official Program.

Members without Advance Registration Cards will be given blank cards to fill out, and clerks will be on hand to direct them to the proper windows for registering. They will receive a badge and a copy of the Official Program.

Registration for General Officers and Delegates at the Hotel Statler

General officers of the American Medical Association and members of the House of Delegates may register for the Scientific Assembly at the entrance to the Ballroom at the Hotel Statler. This arrangement is made for the convenience of members of the House of Delegates, which will convene on Tuesday morning at 10 o'clock in the Ballroom of the Hotel Statler. Delegates are requested to register for the Scientific Assembly before presenting credentials to the Reference Committee on Credentials of the House of Delegates. Registration of delegates for the Scientific Assembly will begin at 8 o'clock Tuesday morning, Nov. 29, and delegates are urged to register early so that all members of the House of Delegates may be seated in time for the opening session of the House.

If any delegate or officer is in Boston on Sunday or Monday, Nov. 27 or 28, he may register for the Scientific Assembly in the Secretary's Office near the Ballroom at the Statler.

Registration for Lay Executive Secretaries

Lay executive secretaries of component and constituent associations may register any time Sunday or Monday, Nov. 27 or 28, or any time *after 12 noon* Tuesday, Nov. 29, during the week of the session in the Secretary's Office near the Ballroom at the Statler.

TRANSPORTATION

Railroad or Air Travel

It is suggested that those physicians who contemplate traveling to Boston to attend the Clinical Meeting of the Association secure information concerning railroad and airplane travel directly from their local ticket agents, who are in position to give them information regarding train or plane schedules and fares. Since the meeting is being held close to the Thanksgiving holiday, when travel by all means of transportation will be heavy, reservations should be made promptly.

BOSTON HOTELS

If hotel reservations have not yet been secured by physicians other than delegates or officers of the Association who expect to attend the Boston meeting, it is suggested that such physicians fill in and send directly to Chairman, A. M. A. Housing Committee, 80 Federal St., Boston 15, Mass., the application form which may be found on advertising page 101 of this issue of The Journal. Please do *not* send applications for hotel reservations to the American Medical Association offices in Chicago. The Boston Convention Bureau is assisting the Housing Committee of the Local Committee on Arrangements.

MEETING PLACES

(See the map of Boston on advertising page 101 in this issue of The Journal.)

General Headquarters, Registration Bureau, Scientific Exhibit, Technical Exhibits, and Information Bureau: Mechanics Hall.

House of Delegates: Ballroom, Hotel Statler.

Scientific Meetings: Mechanics Hall.

Mechanics Hall is located at 111 Huntington Ave.

PUBLIC RELATIONS CONFERENCE

Dr. Dwight H. Murray, President-Elect, will keynote the American Medical Association's Eighth National Medical Public Relations Conference preceding the Boston Clinical Meeting. The Medical Public Relations Conference, which is titled "America, '56," will get under way at 10 a. m., Monday, Nov. 28, in the Ballroom Assembly of the Hotel Statler.

ENTERTAINMENT

Boston Symphony Orchestra

1955 marks the 75th anniversary of the founding of the famous Boston Symphony Orchestra. The hosts for the Boston Clinical Meeting have made arrangements for a special concert by the orchestra on Thursday, Dec. 1, at 8:30 p. m. Dr. Charles Munch will conduct works of Mozart, Brahms, and Richard Strauss. Through the courtesy of Winthrop-Stearns, Inc., complimentary tickets will be available to those desiring them at the Registration Bureau in Mechanics Hall.

Luncheon for Women Physicians

The Boston branch of the American Medical Women's Association has extended an invitation to all women physicians who will attend the Clinical Meeting to be its guests at a luncheon Nov. 30, 1955, at the Women's City Club of Boston. Those interested should communicate with Dr. Marian W. Perry, 88 Scotland Rd., Reading 3, Mass.

"ARS Medica" Collection

A unique collection of medical art by Rembrandt, Daumier, Hogarth, Toulouse-Lautrec, and other great masters depicting the practice of medicine over the centuries will be shown at the Boston meeting on the Balcony of Grand Hall in Mechanics Hall, through the courtesy of Smith, Kline and French Laboratories and the Boston Medical Library. The collection, composed of 85 famous and rare pieces of graphic art, was assembled under a grant by Smith, Kline & French Laboratories, Philadelphia, and presented to the Philadelphia Museum of Art.

POSTCONVENTION TOUR TO THE BAHAMAS

An official postconvention tour is planned immediately after the Boston meeting. A group will leave Boston for New York on Friday afternoon Dec. 2, and on Saturday noon there will be a flight to Nassau, where an interesting and varied program has been arranged. The Bahamas Medical Association is having a scientific meeting in Nassau on Wednesday, Dec. 7, for presentation of a program typical of medical practice in the Bahamas.

Tour members will return to Miami on Saturday, Dec. 10, from where departures may be arranged to home cities. Extensions of the tour or visits to other islands can be arranged.

Full information can be obtained from A. M. A.-Nassau Tour Headquarters, 35 E. Monroe St., Chicago, Ill.

LOCAL COMMITTEE ON ARRANGEMENTS

Central Committee

Frank P. Foster, General Chairman
Laurence B. Ellis, Co-Chairman
Charles S. Davidson, Program
Richard Warren, Television
Thomas A. Warthin, Entertainment and Films

New England States Representatives

Harold M. Marvin, Connecticut
Gerald C. Leary, Maine
Deering G. Smith, New Hampshire
Ellsworth L. Amidon, Vermont
Henri E. Gauthier, Rhode Island

Subcommittee on Television

Dr. Alexander Marble, Chairman
Kenneth W. Warren
C. Cavell Bailey

Subcommittee on Entertainment

Albert S. Murphy, Chairman
Victoria Cass

Subcommittee on Program

Theodore L. Badger, Chairman
John R. Graham, Co-Chairman, Medicine
Lamar Soutter, Co-Chairman, Surgery
Robert F. Bradley
Earle M. Chapman
John F. Conlin
James H. Currens
Charles S. Davidson
Eugene C. Eppinger
Frank P. Foster
Dale G. Friend
F. Thomas Gephart
David M. Greeley
William C. Moloney
Langdon Parsons
Samuel H. Proger
J. Gordon Scannell
Frederick J. Stare
Richard P. Stetson
Morris B. Strauss

Subcommittee on Motion Pictures

Norman Lenson, Chairman

HOUSE OF DELEGATES

The House of Delegates will meet at 10 a. m., Tuesday, Nov. 29, 1955, in the Ballroom of the Hotel Statler.

The Reference Committee on Credentials will meet near the entrance to the Ballroom at 8:30 a. m., Tuesday, Nov. 29, 1955. Credentials should be presented to the Reference Committee on Credentials as early as possible, so that the official roll of the House may be made up and so that the House of Delegates may organize promptly and proceed with its business. The Reference Committee on Credentials will also meet preceding each subsequent meeting of the House of Delegates.

Each delegate should present properly executed credentials signed by the president or secretary of the constituent association or by the chairman or secretary of the section he represents. Alternates presenting credentials should see that the delegates whose places they are to take have signed the alternate authorization.

Each delegate, *before* registering with the Reference Committee on Credentials, should register for the Scientific Assembly at a desk located near the Ballroom. Rooms have been provided for the use of committees of the House of Delegates. Reference committees are urged to have their meetings in these rooms and to announce the time of their meetings, so that any who are interested in referred matters may be able to appear before the committees.

Typists will be at the service of the members of the House of Delegates for preparing official reports, resolutions, and motions in the Secretary's Office, which will be in close proximity to the Ballroom.

REFERENCE COMMITTEES OF THE HOUSE OF DELEGATES

The Speaker of the House of Delegates, Dr. E. Vincent Askey, California, has appointed delegates to serve on the reference committees of the House at the Boston meeting as follows:

Amendments to the Constitution and Bylaws

J. J. Crane, *Chairman*, Section on Urology
Maurice J. Dattelbaum, New York
Karl S. J. Hohlen, Nebraska
Francis T. Holland, Florida
Stanley B. Weld, Connecticut

Board of Trustees and Secretary, Reports of

Homer M. Izumi, *Chairman*, Hawaii
Woodruff L. Crawford, Section on Pediatrics
Frank A. MacDonald, California
Kenneth C. Sawyer, Colorado
Dexter H. Witte, Wisconsin

Credentials

Raymond F. Peterson, *Chairman*, Montana
Thomas M. D'Angelo, New York
John N. Gallivan, Connecticut
R. T. Johnstone, Section on Preventive and Industrial Medicine and Public Health
Spencer A. Kirkland, Georgia

Executive Session

William F. Costello, *Chairman*, New Jersey
Frank J. Elias, Minnesota
Leopold H. Fraser, California
Howard K. Petry, Pennsylvania
Rolland J. Whitacre, Section on Anesthesiology

Hygiene, Public Health, and Industrial Health

L. Howard Schriver, *Chairman*, Ohio
Thomas J. Danaher, Connecticut
Gerald D. Dorman, New York
Paul D. Foster, California
H. Kenneth Scatliff, Illinois

Insurance and Medical Service

Lewis A. Alesen, *Chairman*, California
R. J. Azzari, New York
Lester D. Bibler, Section on General Practice
John K. Glen, Texas
H. Linton January, New Mexico

Legislation and Public Relations

Raymond L. Zech, *Chairman*, Washington
Earle M. Chapman, Massachusetts
Paul A. Davis, Ohio
John J. Masterson, New York
Elmer G. Shelley, Pennsylvania

Medical Education and Hospitals

George M. Fister, *Chairman*, Utah
Warde B. Allan, Maryland
Alfred H. Ellison, Indiana
Warren W. Furey, Illinois
William A. Hyland, Michigan

Medical Military Affairs

Charles H. Richardson Sr., *Chairman*, Georgia
Otis O. Benson Jr., United States Air Force
William C. Chaney, Tennessee
Louis W. Jones, Pennsylvania
Russel V. Lee, Section on Military Medicine

Miscellaneous Business

Frank H. Krusen, *Chairman*, Section on Physical Medicine
Reuben B. Chrisman Jr., Florida
Frank J. Holroyd, West Virginia
William M. Skipp, Ohio
James H. Wooten Jr., Texas

Reports of Officers

Wesley W. Hall, *Chairman*, Nevada
William L. Estes Jr., Pennsylvania
Thurman B. Givan, New York
Robert L. Novy, Michigan
Donovan F. Ward, Iowa

Rules and Order of Business

B. O. Edwards, *Chairman*, North Carolina
C. Byron Blaisdell, New Jersey
George D. Johnson, South Carolina
Ezra A. Wolff, New York
Hoyt B. Woolley, Idaho

Sections and Section Work

Gilson Colby Engel, *Chairman*, Pennsylvania
Howard M. Bubert, Maryland
John S. DeTar, Michigan
Philip S. Foisie, Massachusetts
B. E. Montgomery, Illinois

Tellers

Eustace A. Allen, *Chairman*, Georgia
Charles J. Ashworth, Rhode Island
Orwood J. Campbell, Minnesota
Frank L. Feierabend, Missouri
John F. Lucas, Mississippi

Sergeants-at-Arms

William F. Brennan, *Chairman*, Pennsylvania
David W. Gaiser, Washington
C. Paul White, Illinois

MEMBERS OF THE HOUSE OF DELEGATES

A Roster of the Legislative Body of the American Medical Association

Following is a list of the members of the House of Delegates.

DELEGATES FROM CONSTITUENT ASSOCIATIONS

ALABAMA
B. W. McNease, Fayette
E. Bryce Robinson Jr., Fairfield

ARIZONA
Jesse D. Hamer, Phoenix

ARKANSAS
William R. Brooksher, Fort Smith
Rufus B. Robins, Camden

CALIFORNIA
Lewis A. Alesen, Los Angeles
E. Vincent Askey, Los Angeles
Donald Cass, Los Angeles
Paul D. Foster, Los Angeles
Leopold H. Fraser, Richmond
John Winston Green, Vallejo
Eugene F. Hoffman, Los Angeles
R. Stanley Kneeshaw, San Jose
J. Lafe Ludwig, Los Angeles
Frank A. MacDonald, Sacramento
Sam J. McClendon, San Diego
Robertson Ward, San Francisco
Dwight L. Wilbur, San Francisco

COLORADO
Kenneth C. Sawyer, Denver
George A. Unfug, Pueblo

CONNECTICUT
Thomas J. Danaher, Torrington
John N. Gallivan, East Hartford
Stanley B. Weld, Hartford

DELAWARE
H. Thomas McGuire, New Castle

DISTRICT OF COLUMBIA
Raymond T. Holden, Washington
Hugh H. Hussey Jr., Washington

FLORIDA
Reuben B. Chrisman Jr., Miami
Francis T. Holland, Tallahassee
Louis M. Orr, Orlando

GEORGIA
Eustace A. Allen, Atlanta
Spencer A. Kirkland, Atlanta
Charles H. Richardson, Macon

IDAHO
Hoyt B. Woolley, Idaho Falls

ILLINOIS
Walter C. Bornemeier, Chicago
Everett P. Coleman, Canton
Harlan English, Danville
Warren W. Furey, Chicago
Percy E. Hopkins, Chicago
B. E. Montgomery, Harrisburg
J. Mather Pfeiffenberger, Alton
Charles H. Phifer, Chicago
H. Kenneth Scatliff, Chicago
C. Paul Write, Kewanee

INDIANA
Alfred H. Ellison, South Bend
Eli S. Jones, Hammond
Cleon A. Nafe, Indianapolis
Wendell C. Stover, Boonville

IOWA
Francis C. Coleman, Des Moines
Robert N. Larimer, Sioux City
Donovan F. Ward, Dubuque

KANSAS
George F. Gsell, Wichita
Laurence S. Nelson Sr., Salina

KENTUCKY
Clark Bailey, Harlan
Bruce Underwood, Louisville

LOUISIANA
James Q. Graves, Monroe
Philip H. Jones, New Orleans

MAINE
Martyn A. Vickers, Bangor

MARYLAND
Warde B. Allan, Baltimore
Howard M. Bubert, Baltimore

MASSACHUSETTS
Earle M. Chapman, Boston
Lawrence R. Dame, Greenfield
Philip S. Foisie, Boston
Charles G. Hayden, Boston
Harold R. Kurth, Lawrence
Norman A. Welch, Boston

MICHIGAN
Wyman D. Barrett, Detroit
John S. DeTar, Milan
Willis H. Huron, Iron Mountain
William A. Hyland, Grand Rapids
Ralph A. Johnson, Detroit
Robert L. Novy, Detroit

MINNESOTA
J. Arnold Bargen, Rochester
Orwood J. Campbell, Minneapolis
George A. Earl, St. Paul
Frank J. Elias, Duluth

MISSISSIPPI
John P. Culpepper Jr., Hattiesburg
John F. Lucas, Greenwood

MISSOURI
Arthur S. Bristow, Princeton
Frank L. Feierabend, Kansas City
Durward G. Hall, Springfield
Joseph C. Peden Sr., St. Louis

MONTANA
Raymond F. Peterson, Butte

NEBRASKA
Karl S. J. Hohlen, Lincoln
Joseph D. McCarthy, Omaha

NEVADA
Wesley W. Hall, Reno

NEW HAMPSHIRE
Deering G. Smith, Nashua

NEW JERSEY
C. Byron Blaisdell, Asbury Park
William F. Costello, Dover
Aldrich C. Crowe, Ocean City
J. Wallace Hurff, Newark
L. Samuel Sica, Trenton
Elmer P. Weigel, Plainfield

NEW MEXICO
H. Linton January, Albuquerque

NEW YORK
A. H. Aaron, Buffalo
Walter P. Anderton, New York
R. J. Azzari, New York
Herbert H. Bauckus, Buffalo
Thomas M. D'Angelo, Jackson Heights
Maurice J. Dattelbaum, Brooklyn
Peter J. DiNatale, Batavia
Gerald D. Dorman, New York
Andrew A. Eggston, Mt. Vernon
Edward P. Flood, Bronx
Thurman B. Givan, Brooklyn
J. Stanley Kenney, New York
Charles H. Loughran, Brooklyn
John J. Masterson, Brooklyn
Peter M. Murray, New York
Carlton E. Wertz, Buffalo
Floyd S. Winslow, Rochester
Ezra A. Wolff, Forest Hills

NORTH CAROLINA
B. O. Edwards, Asheville
Millard D. Hill, Raleigh
Charles F. Strosnider, Goldsboro

NORTH DAKOTA
Willard A. Wright, Williston

OHIO
Arthur A. Brindley, Toledo
Paul A. Davis, Akron
Carl A. Lincke, Carrollton
L. Howard Schriver, Cincinnati
Clifford C. Sherburne, Columbus
William M. Skipp, Youngstown
George A. Woodhouse, Pleasant Hill
Herbert B. Wright, Cleveland

OKLAHOMA
John F. Burton, Oklahoma City
Elbert H. Shuller, McAlester

OREGON
Raymond M. McKeown, Coos Bay
Archie O. Pitman, Hillsboro

PENNSYLVANIA
James Z. Appel, Lancaster
William F. Brennan, Pittsburgh
Gilson Colby Engel, Philadelphia
William L. Estes Jr., Bethlehem
Harold B. Gardner, Harrisburg
Louis W. Jones, Wilkes-Barre
George S. Klump, Williamsport
Thomas W. McCreary, Rochester
Howard K. Petry, Harrisburg
Charles L. Shafer, Kingston
Elmer G. Shelley, North East

RHODE ISLAND
Charles J. Ashworth, Providence

SOUTH CAROLINA
George Dean Johnson, Spartanburg
William Weston Jr., Columbia

SOUTH DAKOTA
Arthur A. Lampert, Rapid City

TENNESSEE
William C. Chaney, Memphis
Charles M. Hamilton, Nashville
Charles C. Smeltzer, Knoxville

TEXAS
Joseph B. Copeland, San Antonio
John K. Glen, Houston
Robert B. Homan Jr., El Paso
Milford O. Rouse, Dallas
Arthur C. Scott, Temple
Truman C. Terrell, Fort Worth
James H. Wooten Jr., Columbus

UTAH
George M. Fister, Ogden

VERMONT
James P. Hammond, Bennington

VIRGINIA
Vincent W. Archer, Charlottesville
J. Morrison Hutcheson, Richmond

WASHINGTON
R. A. Benson, Bremerton
David W. Gaiser, Spokane
Raymond L. Zech, Seattle

WEST VIRGINIA
Frank J. Holroyd, Princeton
Walter E. Vest, Huntington

WISCONSIN
Stephen E. Gavin, Fond du Lac
Joseph C. Griffith, Milwaukee
William D. Stovall, Madison
Dexter H. Witte, Milwaukee

WYOMING
W. Andrew Bunten, Cheyenne

ALASKA
Milo H. Fritz, Anchorage

HAWAII
Homer M. Izumi, Honolulu

ISTHMIAN CANAL ZONE
Lewis B. Bates, East Weymouth, Mass.

PUERTO RICO
F. Sánchez-Castaño, Vega Baja

DELEGATES FROM THE SECTIONS AND GOVERNMENT SERVICES

ANESTHESIOLOGY
Rolland J. Whitacre, East Cleveland, Ohio

DERMATOLOGY
Robert R. Kierland, Rochester, Minn.

DISEASES OF THE CHEST
Hollis E. Johnson, Nashville, Tenn.

EXPERIMENTAL MEDICINE AND THERAPEUTICS
Edgar V. Allen, Rochester, Minn.

GASTROENTEROLOGY AND PROCTOLOGY
Louis A. Buie, Rochester, Minn.

GENERAL PRACTICE
Lester D. Bibler, Indianapolis

INTERNAL MEDICINE
Charles T. Stone Sr., Galveston, Texas

LARYNGOLOGY, OTOLOGY AND RHINOLOGY
Gordon F. Harkness, Davenport, Iowa

MILITARY MEDICINE
Russel V. Lee, Palo Alto, Calif.

NERVOUS AND MENTAL DISEASES
Hans H. Reese, Madison, Wis.

OBSTETRICS AND GYNECOLOGY
Ralph E. Campbell, Madison, Wis.

OPHTHALMOLOGY
William L. Benedict, Rochester, Minn.

ORTHOPEDIC SURGERY
H. Relton McCarroll, St. Louis

PATHOLOGY AND PHYSIOLOGY
Lall G. Montgomery, Muncie, Ind.

PEDIATRICS
W. L. Crawford, Rockford, Ill.

PHYSICAL MEDICINE
Frank H. Krusen, Rochester, Minn.

PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH
R. T. Johnstone, Los Angeles

RADIOLOGY
Byrl R. Kirklin, Rochester, Minn.

SURGERY, GENERAL AND ABDOMINAL
Grover C. Penberthy, Detroit

UROLOGY
J. J. Crane, Los Angeles

UNITED STATES AIR FORCE
Otis O. Benson Jr.

UNITED STATES ARMY
James P. Cooney

UNITED STATES NAVY
B. E. Bradley

PUBLIC HEALTH SERVICE
W. Palmer Dearing

VETERANS ADMINISTRATION
Roy A. Wolford

There will be present also two students representing the Student American Medical Association.

SCIENTIFIC PROGRAM

MECHANICS' BUILDING

The Council on Scientific Assembly, in presenting the following program of scientific lectures, color television, motion pictures, and scientific exhibits, wishes to extend its appreciation to the Local Committee on Arrangements in Boston for its contribution of time and energy. Practically the whole program is the result of the effort of the General Chairman, together with the Program Committee, over many months of activity.

SCIENTIFIC LECTURES

OPENING GENERAL ASSEMBLY: GRAND HALL

Tuesday morning, Nov. 29

Chairman: Frank P. Foster, Boston.

10:30 **Welcome Addresses:**
Elliott P. Joslin, Boston.
Elmer Hess, Erie, Pa.

11:00 **The Art of Medicine.** C. Sidney Burwell, Boston.

11:45 **Trends in Medical Research.**
James A. Shannon, Bethesda, Md.

Tuesday afternoon, Nov. 29

Chairman: Earle M. Chapman, Boston.
Co-Chairman: Deering G. Smith, Boston.

2:00 **Clinical Pathological Cases.**

1. Benjamin Castleman, Boston, and Cecil J. Watson, Minneapolis.
2. Ralph E. Miller, Hanover, N. H., and Lester R. Dragstedt, Chicago.

3:30 **Panel on Antimicrobial Therapy.**
Chester S. Keefer, Boston, Moderator.

PAUL REVERE HALL

Tuesday afternoon, Nov. 29

Chairman: J. Gordon Scannell, Boston.
Co-Chairman: Richard Warren, Boston.

2:00 **Panel on Anemia.**
William B. Castle, Boston, Moderator.

3:00 **Common Emergencies in the Care of the Critically Ill: The Airway, Blood Volume, and Renal Function.**
Francis C. Moore, Boston.

3:30 **Nitrous Oxide-Oxygen-Curare Analgesia for Major Surgery in the Poor-Risk Patient.**
Morris L. Heller and T. Richard Watson, Hanover, N. H.

4:00 **Nonunion of Bone.** Edwin F. Cave, Boston.

4:30 **Management of the Frozen Shoulder.**
G. Edmund Haggart, Robert J. Dignam, and Thomas H. Sullivan, Boston.

The Treatment of Checkrein Shoulder by Manipulation and Cortisone. T. B. Quigley, Boston.

TALBOT HALL

Tuesday afternoon, Nov. 29

Chairman: David M. Greeley, Boston.
Co-Chairman: Thomas A. Warthin, Boston.

2:00 **Panel on Adolescent Medicine.**
Charles A. Janeway, Boston, Moderator.

3:00 **The Significance of a Fat-Splitting Enzyme in the Urine for the Diagnosis of Pancreatic Disease.**
Martin M. Nothmann, Boston.

Present-Day Concepts of Anacidity.
Howard M. Spiro, New Haven, Conn.

3:30 **The Clinical Use of the Urinary Uropepsin Excretion in Gastrointestinal and Endocrine Diseases.**
Seymour J. Gray, Colin G. Ramsey, Vincent A. DeLuca Jr., and Lewis J. Krakauer, Boston, and Robert W. Reifenstein, Syracuse, N. Y.

4:00 **Hiatus Hernia, Esophago-Gastric Hemorrhage, Marginal Esophageal Ulcer, and Mallory-Weiss Syndrome.**
Felix G. Fleischner, Boston.

4:30 **Results of Subtotal Gastric Resection (Billroth II) for Duodenal Ulcer Disease: (1) The Influence of Preoperative Acidity upon Postoperative Acidity in Relation to the Extent of Resection and (2) Relation of Postoperative Sequelae to Extent of Resection.**
James L. A. Roth, I. Becker, S. Vine, and H. L. Bockus, Philadelphia.

GRAND HALL

Wednesday morning, Nov. 30

Chairman: Lamar Soutter, Boston.
Co-Chairman: Theodore L. Badger, Boston.

9:30 **Control of Hepatitis.** Richard B. Capps, Chicago.

10:00 **Responsibility of the Family Doctor in the Treatment of Tuberculosis.** J. Burns Amberson Jr., New York.

10:30 **The Acute Abdomen.** I. S. Ravdin, Philadelphia.

11:00 **Panel on Psychotherapy in General Practice.**
Claude E. Forkner, New York, Moderator.

PAUL REVERE HALL

Wednesday morning, Nov. 30

Chairman: Maurice B. Strauss, Boston.
Co-Chairman: Alexander Marble, Boston.

9:00 **Pheochromocytoma—A Clinicopathological Analysis of Thirty-Eight Cases.** Meyer M. Melicow, New York.

9:30 **Persistent Hyperthyroidism with Normal Protein-Bound Iodine While on Antithyroid Drugs.**
Earle M. Chapman and Farahe Maloof, Boston.

10:00 **Diabetes of Thirty-Five Years' Duration.**
Paul L. Barclay and Howard F. Root, Boston.

10:30 **On Death by Drowning.**
Christopher C. Shaw, Philadelphia.

11:00 **The Pathogenesis of Acute Glomerulonephritis and Lipid Nephrosis: Demonstration of Glomerular-Localizing Globulins.**
Robert C. Mellors and Louis G. Ortega, New York.

11:30 **Incidence of Asymptomatic Infections of the Urinary Tract in an Outpatient Population.**
Edward H. Kass and Egon Riss, Boston.

12:00 **Environmental Support in Long-Term Illness.**
Robert P. Smith, Boston.

TALBOT HALL

Wednesday morning, Nov. 30

Chairman: JOHN R. GRAHAM, Boston.

Co-Chairman: RICHARD P. STETSON, Boston.

9:00 **Practical Aspects of the Preanesthetic Management of Children in a Community Hospital.**
PETER G. LEHNDORFF, A. D. DELISLE, and N. H. STEWART, Fitchburg, Mass.

Another Look at Acne Vulgaris in Adolescence.
WILLIAM R. HILL, FELIX P. HEALD, ROBERT P. MASLAND JR., and J. ROSWELL GALLAGHER, Boston.

9:30 **The Crying Baby.** DAVID McL. GREELEY, Boston.

10:00 **Accidental Poisoning in Children.**
HAROLD JACOBZINER, New York.

10:30 **Blood Replacement in Thoracic Surgery for Children.**
ROBERT M. SMITH and ROBERT E. GROSS, Boston.

11:00 **Hypothyroidism in Adolescence.**
FELIX P. HEALD, ALBERT E. RENOLD, and J. ROSWELL GALLAGHER, Boston.

11:30 **Management of Behavior Disorders in Children.**
HARRY BAKWIN, New York.

12:00 ***The Clinical Management of Phenylketonuria.***
DAVID YI-YUNG HSIA, WALTER TROLL, and W. EUGENE KNOX, Boston.

GRAND HALL

Wednesday afternoon, Nov. 30

Chairman: F. THOMAS GEPHART, Boston.

Co-Chairman: HENRI E. GAUTHIER, Boston.

2:00 **Poliomyelitis and Other Viruses.**
THOMAS H. WELLER, Boston.

2:30 **X-Ray Presentation.** MERRILL C. SOSMAN, Boston.

3:30 **Panel on Evaluation and Management of the Surgical Risk.**
ARTHUR W. ALLEN, Boston, Moderator.

PAUL REVERE HALL

Wednesday afternoon, Nov. 30

Chairman: LAURENCE B. ELLIS, Boston.

Co-Chairman: FREDRICK J. STARE, Boston.

2:00 **A Simple Clinical Test for Detecting the Altered Cardiodynamics of Ventricular Failure of Valvular Stenosis.**
JOHN H. KNOWLES and RICHARD GORLIN, Portsmouth, Va.

2:30 **The Influence of Heart Disease on Surgical Risk.**
J. B. DANA and ROBERT L. OHLER, Togus, Maine.

Age, Serum Lipids, and Coronary Atherosclerosis.
DAVID ADLERSBERG, LOUIS E. SCHAEFER, ARTHUR G. STEINBERG, and CHUN-I WANG, New York.

3:00 **Isolated Aortic Stenosis: Evaluation for Surgical Treatment, Choice of Operation, and Results.**
GEORGE B. STARKEY and WALTER H. ABELMANN, Boston.

3:30 **The Varied Manifestations of Dissecting Aneurysm of the Aorta.** SAMUEL BAER, Philadelphia.

4:00 **The Pathogenesis of Acute Peripheral Arterial Occlusion: A Basis for Clinical Management.**
STANFORD WESSLER and MARVIN GILBERT, Boston.

4:30 **Remittent Necrotizing Acrocyanosis.**
EDWARD A. EDWARDS, Boston.

TALBOT HALL

Wednesday afternoon, Nov. 30

Chairman: LANGDON PARSONS, Boston.

Co-Chairman: EUGENE C. EPPINGER, Boston.

2:00 **Renal Function Studies Throughout Pregnancy in the Normal Woman.**
KERMIT E. KRANTZ and ETHAN A. H. SIMS, Burlington, Vt.

2:30 **Coagulation Defects in Severe Intrapartum and Postpartum Hemorrhage.**
DUNCAN E. REID, CHARLES C. ROBY, and ALBERT E. WEINER, Boston.

3:00 **The Repeat Cesarean—A Review of 1,000 Cases.**
ROY J. HEFFERNAN and WILLIAM A. LYNCH, Boston.

3:30 **Saphenous Vein Stripping for Varicose Veins During Pregnancy.**
RODGER E. WEISMANN and EDWARD W. JENKINS, Hanover, N. H.

4:00 **The Management of Hypertension Associated with Pregnancy.**
JAMES H. CURRENS and DUNCAN E. REID, Boston.

4:30 **The Menopause: A Review of the Problem.**
JOSEPH ROGERS, Boston.

GRAND HALL

Thursday morning, Dec. 1

Chairman: EUGENE C. EPPINGER, Boston.

Co-Chairman: HAROLD M. MARVIN, Boston.

9:30 **Postmenopausal Bleeding.** JOE V. MEIGS, Boston.

10:00 **Reversible Uremic States.**
FRANKLIN H. EPSTEIN, New Haven, Conn.

10:30 **Epidemiology of Cardiovascular Disease.**
PAUL D. WHITE, Boston.

11:00 **Panel on Drugs, Radiation, and Surgery in the Management of Cancer.**
J. ENGLEBERT DUNPHY, Boston, Moderator.

PAUL REVERE HALL

Thursday morning, Dec. 1

Chairman: THEODORE L. BADGER, Boston.

Co-Chairman: LAMAR SOUTTER, Boston.

9:00 **Treatment of Spontaneous Pneumothorax.**
ARMAND A. LEFEMINE, EDWARD T. O'HARA, and JOSEPH P. LYNCH, Boston.

9:30 **Lung Function Tests: Their Value in Medical Diagnosis and Treatment.**
DAVID W. CUGELL, WALTER H. ABELMANN, EDWARD A. GAENSLER, and THEODORE L. BADGER, Boston.

10:00 **Chronic Obstructive Pulmonary Emphysema.**
FRANCIS C. LOWELL, WILLIAM FRANKLIN, ALAN L. MICHELSON, and IRVING W. SCHILLER, Boston.

10:30 **Lipid Pneumonia Simulating Lung Cancer.**
JOHN L. POOL and LOTON H. RASMUSSEN, New York.

The Treatment of Acute Respiratory Insufficiency.
EUGENE D. ROBIN, JOHN M. TYLER, EUGENE C. EPPINGER, and DON J. WEEKES, Boston.

11:00 **The Importance of Mitral Stenosis in Patients with Symptoms of Chronic Pulmonary Disease.**
GORDON S. MYERS, EDWARD F. BLAND, ALLAN L. FRIEDLICH, and J. GORDON SCANNELL, Boston.

11:30 **Empyema in Infants and Children.**
DONALD B. MILLER and R. JAMES MCKAY JR., Burlington, Vt.

Empyema Thoracis in the Antibiotic Era.
JOSEPH P. LYNCH and GERARD DESFORGES, Boston.

12:00 **Postgraduate Medical Education in the Nonuniversity Hospital.** JOHN C. LEONARD, Hartford, Conn.

TALBOT HALL

Thursday morning, Dec. 1

Chairman: ROBERT F. BRADLEY, Boston.
Co-Chairman: WILLIAM C. MOLONEY, Boston.

9:00 **Cerebral Arteriosclerosis.**
NAOMI RASKIN, Dorchester, Mass.

Senile Degenerations of the Brain and Their Relations to Psychoses and Diseases.
GEORGE STRASSMANN and MYER ASEKOFF, Waltham, Mass.

9:30 **The Administration of Anticoagulant Drugs in the Prevention and Treatment of Certain Types of Strokes.**
C. H. MILLIKAN, R. G. SIEKERT, J. P. WHISNANT, and R. M. SHICK, Rochester, Minn.

10:00 **Prognostic Studies in Cerebral Palsy.**
ERIC DENHOFF, MAURICE L. SILVER, and RAYMOND H. HOLDEN, Providence, R. I.

10:30 **The Clinical Significance of the Syndrome of Hereditary Light Sensitivity.**
C. WESLEY WATSON, SHERWOOD DAVIDSON, and JOHN F. SULLIVAN, Boston.

11:00 **Clinical Observations of Manic-Depressive Disease.**
WALTER E. CASSIDY, NORRIS B. FLANAGAN, MARIE SPELLMAN, and MANDEL E. COHEN, Boston.

A Report of Five Deaths in Electrotherapy with Necropsy Findings in Four of the Cases.
SAUNDERS P. ALEXANDER, LAWRENCE H. GAHAGAN, and WILLIAM HALL LEWIS JR., New York.

11:30 **Five-Year Follow-Up of Patients Subjected to Three Different Lobotomy Procedures.**
NORMAN PAUL, EDWARD FITZGERALD, and MILTON GREENBLATT, Boston.

12:00 **Occupational Stress and Emotional Illness.**
JACKSON A. SMITH, Houston, Texas.

Compliancy Factor in Obesity and Skinniness.
ADELAIDE M. JOHNSON, S. H. FRAZIER, M. E. GIFFEN, and M. H. FAUBION, Rochester, Minn.

GRAND HALL

Thursday afternoon, Dec. 1

Chairman: SAMUEL H. PROGER, Boston.
Co-Chairman: GERALD C. LEARY, Boston.

2:00 **Clinical Pathological Cases.**
1. SHIELDS WARREN, Boston, and GEORGE W. WRIGHT, Cleveland.
2. ARTHUR T. HERTIG and JOE V. MEIGS, Boston.

3:30 **Panel on Impact of Prolonged Specialty Training upon General Practice.**
EDWIN L. CROSBY JR., Chicago, Moderator.

PAUL REVERE HALL

Thursday afternoon, Dec. 1

Chairman: RICHARD WARREN, Boston.
Co-Chairman: LANGDON PARSONS, Boston.

2:00 **Panel on Industrial Medicine.**
HARRIET L. HARDY, Boston, Moderator.

3:00 **Open Wounds of the Hand.** J. EDWARD FLYNN, Boston.

3:30 **Skin Grafts for Chronic Open Wounds of the Lower Extremity.**
JOSEPH E. MURRAY and BRADFORD CANNON, Boston.

4:00 **The Surgical Treatment of Abdominal Aortic Aneurysm.**
DAVID P. BOYD, Boston.

4:30 **Evaluation of Induced Hypotension in Craniotomy.**
VALENTINO D. B. MAZZIA, BRONSON S. RAY, and JOSEPH F. ARTUSIO JR., New York.

TALBOT HALL

Thursday afternoon, Dec. 1

Chairman: DALE G. FRIEND, Boston.
Co-Chairman: F. THOMAS GEPHART, Boston.

2:00 **Panel on Seizures.**
JOSEPH M. FOLEY, Boston, Moderator.

3:00 **Serious Complications Due to Trauma of the Occiput.**
ROBERT G. FISHER and JUNG K. KIM, Hanover, N. H.

3:30 **Evaluation of Thymectomy in Myasthenia Gravis.**
HENRY R. VIETS and ROBERT S. SCHWAB, Boston.

4:00 **The Care of the Bladder in Neurological Disorders.**
HERBERT S. TALBOT, West Roxbury, Mass.

4:30 **Sound Projection Testing of Emotionally Ill United States Naval Personnel.**
H. A. WILMER, D. C. GAEDE, and D. BRIGGS, Oakland, Calif.

GRAND HALL

Friday morning, Dec. 2

Chairman: RICHARD P. STETSON, Boston.
Co-Chairman: ELLSWORTH L. AMIDON, Boston.

9:30 **Management of Acute Cerebrovascular Disease.**
RAYMOND D. ADAMS, Boston.

10:00 **Cause and Prevention of Developmental Defects.**
THEODORE H. INGALLS, Boston.

10:30 **Atoms for Peace.** WILLIAM H. SWEET, Boston.

11:00 **Panel on the Cortisones in the Treatment of Infections, Arthritis, and Malignant and Degenerative Diseases.**
RANDALL G. SPRAGUE, Rochester, Minn., Moderator.

PAUL REVERE HALL

Friday morning, Dec. 2

Chairman: FREDRICK J. STARE, Boston.
Co-Chairman: CHARLES S. DAVIDSON, Boston.

9:00 **Prediction of the Response to Radioiodine Treatment for Hyperthyroidism.**
BELTON A. BURROWS, MARVIN L. MITCHELL, ELISABETH A. DELL, and DOROTHY A. GRAHAM, Boston, and JOSEPH F. ROSS, Los Angeles.

9:30 **The Clinical Use and Anticoagulant Properties of Phenindione.**
HERBERT S. SISE, DIONYSIOS ADAMIS, and DELBERT M. KIMBALL, Boston.

10:00 **The Management of Idiopathic Thrombocytopenic Purpura.**
MILTON S. SACKS and ALICE M. BAND, Baltimore, Md.

10:30 **Hepatic Coma.** SHEILA SHERLOCK, London, England.

11:00 **The Treatment with Sodium Phytate of Hypercalcemia and Hypercalcuria in Sarcoid, Hypervitaminosis D, and Idiopathic Hypercalcuria.**
PHILIP H. HENNEMAN, EVELYN L. CARROLL, and FULLER ALBRIGHT, Boston.

11:30 **Hypersensitivity as a Mechanism in Vasculitis.**
ROBERT P. MCCOMBS, JAMES F. PATTERSON, and H. EDWARD MACMAHON, Boston.

12:00 **Physical and Physiological Clues for Diagnosing Eczema.**
WALTER C. LOBITZ JR. and RICHARD L. DOBSON, Hanover, N. H.

TALBOT HALL

Friday morning, Dec. 2

Chairman: WILLIAM C. MOLONEY, Boston.
Co-Chairman: MAURICE D. STRAUSS, Boston.

9:00 **The Interpretation of the Vaginal Smear in the Diagnosis of Cervical Cancer: Sensitivity Versus Specificity.**
JOSEPH E. PORTER, Portland, Maine.

9:30 **New Laboratory Procedures Which Are Useful for the Diagnosis of Cancer of the Prostate and Cancer of the Cervix.** FREDDY HOMBURGER and W. H. FISHMAN, Boston.

10:00 **Mammary Cancer: Selection of Hormone Dependent Tumors Using Urine Estrogen and Calcium Studies.**
ANDREW G. JESSIMAN, Boston.

10:30 **Prolonged Remissions of Advanced Mammary Cancer Following Cortisone Therapy.** H. M. LEMON, Boston.

11:00 **Surgical Management of Pulmonary Metastases.**
JOHN W. STRIEDER, Brookline, Mass.

11:30 **Fifty Lung Cancer Five-Year Survivors.**
RICHARD H. OVERHOLT, Boston.

12:00 **Cancer of the Colon and Rectum: A Statistical and End-Result Study.**
NEIL W. SWINTON and RUSSELL L. COUNTS, Boston.

COLOR TELEVISION

TELEVISION HALL

The following program is presented in cooperation with Smith, Kline & French Laboratories, Philadelphia, under the chairmanship of ALEXANDER MARBLE, Boston. The program will originate at the New England Deaconess Hospital, and will be viewed on screens in the Television Room, second floor, Mechanics' Building.

Tuesday afternoon, Nov. 29

2:00 **Diagnostic Evaluation of the Patient with Bleeding Disease.**
MARIO STEFANINI and ASSOCIATES, St. Elizabeth's Hospital, Boston.

2:20 **Hemorrhage and Thrombosis: Two Sides of a Coin.**
BENJAMIN ALEXANDER and STANFORD WESSLER, Beth Israel Hospital, Boston.

2:40 **The Management of Rheumatoid Arthritis.**
THEODORE B. BAYLES, Robert Breck Brigham Hospital, Boston.

3:00 **Treatment of Gout.**
ELMER C. BARTELS, Lahey Clinic, Boston.

3:20 **Clinic on Poliomyelitis.**
CHARLES A. JANEWAY, R. CANNON ELEY, WILLIAM T. GREEN, DAVID S. GRICE, SIDNEY KIBRICK, and BENJAMIN G. FERRIS JR., Children's Medical Center, Boston.

Wednesday morning, Nov. 30

9:00 **Partial Gastrectomy for Peptic Ulcer.**
SAMUEL F. MARSHALL, Lahey Clinic, Boston.

10:15 **Amputation for Diabetic Gangrene.**
LELAND S. MCKITTRICK, New England Deaconess Hospital and Massachusetts General Hospital, Boston.

Wednesday afternoon, Nov. 30

2:00 **Ileostomy Clinic.**
RICHARD WARREN and FRANCIS D. MOORE, Peter Bent Brigham Hospital, Boston.

2:20 **Treatment of Diabetic Coma.**
HOWARD F. ROOT, ROBERT F. BRADLEY, and LEO P. KRALL, Joslin Clinic and New England Deaconess Hospital, Boston.

2:40 **Medical Management of Kidney Stones.**
PHILIP H. HENNEMAN, Massachusetts General Hospital, Boston.

3:00 **Treatment of Cardiac Arrest in Stokes-Adams Disease with External Electric Stimulation, i. e., "The Pacemaker."**
PAUL M. ZOLL, Beth Israel Hospital, Boston.

3:20 **Adrenal Syndromes: Recognition and Treatment.**
GEORGE W. THORN, ALBERT E. RENOLD, and ASSOCIATES, Peter Bent Brigham Hospital, Boston.

Thursday morning, Dec. 1

9:00 **Pulmonary Resection.**
RICHARD H. OVERHOLT, New England Deaconess Hospital, Boston.

10:15 **Cholecystectomy and Choledochostomy.**
HERBERT D. ADAMS, Lahey Clinic, Boston.

11:15 **Symposium on Management of Anesthetic Emergencies.**
URBAN H. EVERSOLE and ASSOCIATES, Lahey Clinic, and LEO V. HAND and ASSOCIATES, New England Deaconess Hospital, Boston.

Thursday afternoon, Dec. 1

2:00 **Drug Treatment of Hypertension.**
ROBERT W. WILKINS, Massachusetts Memorial Hospitals, Boston.

2:20 **Diagnosis and Treatment of Common Skin Diseases.**
BERNARD APPEL, Boston City Hospital, Boston.

2:40 **Gastric Ulcer: Diagnosis and Treatment.**
MERRILL C. SOSMAN and SEYMOUR J. GRAY, Peter Bent Brigham Hospital, and SAMUEL F. MARSHALL, Lahey Clinic, Boston.

3:00 **Medical Care and Rehabilitation of the Aged and Chronically Ill.**
FREDDY HOMBURGER and CHARLES D. BONNER, Tufts College Medical School and Holy Ghost Hospital, Boston.

3:30 **Treatment of Psychiatric Patients in a General Hospital with Demonstration of Electric Shock Treatment and Presentation of a Lobotomy Case.**

ROBERT E. FLEMING and OSCAR J. RAEDER, New England Deaconess Hospital, and WALTER I. TUCKER, Lahey Clinic, Boston.

Friday morning, Dec. 2

9:00 **Abdominoperineal Resection for Carcinoma of the Rectum.** RICHARD B. CATTELL, Lahey Clinic, Boston.

10:15 **Carcinoma of the Stomach.**

RICHARD H. SWEET, New England Deaconess Hospital and Massachusetts General Hospital, Boston.

MOTION PICTURES

PAUL REVERE ANNEX

Motion pictures will be shown daily from Tuesday at 10:30 a. m. continuing through Friday noon in the Paul Revere Annex of Mechanics' Building. There will also be a Special Film Program, Wednesday evening in the Georgian Room, Hotel Statler, at 8:00 p. m.

Tuesday morning, Nov. 29

Radioisotopes: Their Application to Humans As Tracer Studies and for Therapeutic Use.

U. S. ATOMIC ENERGY COMMISSION, Washington, D. C.

This film gives a comprehensive review of the application of radioisotopes directly to the patient and shows the use of radioactive iodine, sodium, iron, calcium, lanthanum, strontium, cobalt, phosphorus, gold and the neutron capture therapy involving boron for treatment of brain tumors. Sound, 26 minutes.

Gout and Gouty Arthritis.

JOHN H. TALBOTT, Buffalo, and ALEXANDER B. GUTMAN, New York.

This film demonstrates current knowledge on the history, etiology, and diagnosis and treatment of gout and gouty arthritis, with particular reference to the uricosuric agent probenecid. Sound, 18 minutes.

Diagnosis and Office Management of the Arthritides.

WILLIAM B. RAWLS, New York.

This film shows by the split frame technique both rheumatoid arthritis and osteoarthritis at the same time. Differential diagnostic points are discussed and treatment by methods including cortisone, intra-articular injections of hydrocortisone, Butazolidin, gold therapy, and exercises are shown. Sound, 28 minutes.

Amyotrophic Lateral Sclerosis in the Mariana Islands.

LEONARD T. KURLAND, Bethesda, Md., and DONALD W. MULDER, Rochester, Minn.

This film demonstrates the clinical and pathological features in several patients and reveals that the amyotrophic lateral sclerosis observed has a high familial incidence and yet is a classical form of the disease. Progressive muscular atrophy and progressive bulbar palsy, as clinical components of amyotrophic lateral sclerosis, are illustrated. Electromyographic records are demonstrated. The absence of any effect of the disease on pregnancy and the failure of pregnancy to influence the disease are also demonstrated. Sound, 22 minutes.

Orbital Decompression in Malignant Exophthalmos.

JOSEPH DORSEY, Boston.

This film demonstrates the clinical manifestations and surgical treatment of orbital decompression in malignant exophthalmos.

Tuesday afternoon, Nov. 29

Ocular Bacteriology: Its Application to Clinical Practice.

JAMES H. ALLEN, New Orleans.

This film shows a panel of six ophthalmologists participating in a panel discussion of bacteriology of the eye. It covers bacteriological examination of the lids and lacrimal apparatus, conjunctival lesions, intraocular inflammations and infections, orbital infections, and examination of ocular allergies. Sound, 40 minutes.

Recording Oximeters and Their Application.

JOHN F. PERKINS JR. and WILLIAM ADAMS, Chicago.

This motion picture briefly outlines principles of operation of ear oximeters, advantages of recording type oximeters over galvanometer types, uses of oximeters in teaching physiology of respiration, in pulmonary function studies, in thoracic surgery, and in postoperative oxygen therapy. Sound, 17 minutes.

Fractures About the Wrist and Hand.

VETERANS ADMINISTRATION, Washington, D. C.

This film discusses the functional anatomy of the wrist and hand, particularly as it relates to fractures in that area. The mechanisms of typical injuries, including fractures of the phalanges, metacarpals, carpal navicular, lunate, and the Colles fracture, are described. Treatment by manipulation, traction, and immobilization is demonstrated, with emphasis on the basic principles of fracture reduction. The film includes a section of the after-care of wrist and hand fractures. Sound, 30 minutes.

Principles of Fracture Reduction.

VETERANS ADMINISTRATION, Washington, D. C.

This is a teaching film based purely on application of the fundamentals of the reduction of fractures by traction and suspension and an understanding of the anatomy in various fractures of the long bones. The anatomy is illustrated by animation. The film places emphasis on the fact that fractures are reduced by brains and not brawn. Sound, 30 minutes.

Hyperventilation: A Problem in Aviation Medicine?

BRUNO BALKE, Randolph Air Force Base, Texas.

This film shows the results of laboratory experiments to reveal the relationship between hyperventilation and psychomotor performance. Sound, 15 minutes.

Pheochromocytoma.

KEITH S. GRIMSON, Durham, N. C.

This film presents the signs and symptoms of tumors of the adrenal medulla. The use of drugs in diagnosis is stressed, especially the value of histamine in normotensive patients and of adrenolytic agents in persons with hypertension. Sound, 25 minutes.

Pheochromocytoma.

KENNETH C. SAWYER, WILLIAM M. M. ROBINSON, and ROBERT E. MCCURDY, Denver.

This film illustrates details in the successful management of a case of pheochromocytoma. A simplified technique for the exposure and removal of the tumor is shown. Silent, 17 minutes.

Antituberculosis Drugs in the Medical and Surgical Treatment of Tuberculosis.

H. CORWIN HINSHAW, San Francisco.

This film shows what can be accomplished frequently for tuberculosis patients when hospital care, together with antibacterial drug therapy, pulmonary collapse, and surgical resection are all brought to bear upon the problem when necessary. Sound, 22 minutes.

Complicated Appendicitis.

JAMES RIVES, New Orleans.

This film embraces the operative management of acute appendicitis in its predictable and less predictable locations and also the method of handling immediate and late complications. The errors in surgical technique are shown, and emphasis is placed on adequate exposure. Sound, 32 minutes.

Congenital Biliary Atresia.

ROBERT T. TIDRICK, Iowa City.

This film is devoted to the operative treatment of biliary obstruction in infancy. Cases of congenital atresia and posthepatitis ductal obliteration are presented. Various aids in operative evaluation are shown, with emphasis on cholangiography, injection of dilute methylene blue in the ducts, and liver biopsies with frozen sections. Sound, 32 minutes.

Wednesday morning, Nov. 30

Cancer of the Thyroid: Treatment of a Case by Radioactive Iodine.

American Medical Association, Chicago.

This film shows the diagnosis and management of a case of carcinoma of the thyroid with metastasis to the hip and its treatment with radioactive iodine. Sound, 7 minutes.

Lung Cancer: The Problem of Early Diagnosis.

American Cancer Society, New York.

Emphasis is placed on the differential diagnostic problems of patients with symptoms referable to the chest and particularly of patients in the early symptomatic stages of the disease. The practicing physician's examination of the patient is outlined in some detail, with emphasis on such things as complete x-ray studies and sputum cytology. The techniques of bronchoscopy and bronchial washings for cytology are shown. Sound, 30 minutes.

Radical Retroperitoneal Node Dissection in the Treatment of Testicular Tumor.

J. W. Schwartz and K. E. Van Buskirk, Washington, D. C.

Gross and microscopic germinal testicular tumors are shown and the treatment is outlined. The complete operation of radical retroperitoneal node dissection is demonstrated. Silent, 22 minutes.

Radical Surgery for Advanced Lung Cancer.

Adrian Lambert, New York.

The main portion of the film brings out the radical surgical approach to advanced lung cancer when the disease has progressed outside the lung into the chest wall and the mediastinum. The correct handling of this extensive disease is emphasized in order to give the patient the benefits of a possible cure. Sound, 32 minutes.

Cancer Detection.

Henry T. Randall, Emerson Day, George N. Papanicolaou, and Genevieve Bader, New York.

This is a Kinescope of a program originally produced for closed-circuit television by the American Cancer Society. A practical office cancer detection examination is demonstrated. Attention is devoted to methods of extending the range of early cancer accessible to office examination and to the role of the practitioner in the field of cancer control. Sound, 38 minutes.

Bilateral Adrenalectomy for Metastatic Carcinoma of the Breast.

Harold Masters, Beverly Hills, Calif.

The surgical technique of bilateral adrenalectomy is demonstrated. Cortisone requirements and preoperative and postoperative care is discussed. Sound, 22 minutes.

Panel discussion by: Andrew Jessiman, Boston.
O. H. Pearson, New York.
Grantley Taylor, Boston.
Norman Lenson, Boston.

Wednesday afternoon, Nov. 30

Abdominoperineal Resection for Cancer of the Rectum.

Charles G. Child III and Arthur J. Donovan, Boston.

This is a case-record orientational teaching film showing the extended scope of an abdominoperineal resection. The inferior mesenteric artery is ligated high. The pelvic nodes are extirpated and there is no reconstruction of the peritoneal floor.

Panel discussion by: J. Englebert Dunphy, Boston.
Claude Welch, Boston.
Kenneth W. Warren, Boston.

Questions from the audience will be invited.

Technique for Splenectomy.

John L. Madden, New York.

This film demonstrates a technique for performing a splenectomy on a typical patient with hypersplenism. The approach is made through an upper left paramedian incision; mobilization of the enlarged spleen includes dissection and removal of an accessory splenic nodule. A diagram illustrating the horizontal disposition of the peritoneum in the abdominal cavity has been inserted for orientation. Sound, 25 minutes.

Operative Clinic on Jaundice.

Francis D. Moore, Boston.

Cholecystectomy.

Richard B. Cattell, Boston.

In this film, the exposure is made through a right rectus muscle splitting incision with displacement of duodenum and head of pancreas to place the gastrohepatic omentum on a stretch. Demonstration of cystic, hepatic, and common ducts, as well as cystic and hepatic arteries, is essential before removal of the gallbladder, which is usually done from below upward. After decision relative to the necessity for common duct exploration the gastrohepatic ligament and gallbladder fossa is approximated. Sound, 32 minutes.

Thursday morning, Dec. 1

Action of Human Mitral and Aortic Valves Studied Post Mortem by Cinematography.

Ian K. R. McMillan, London, England.

This film is a cinematographic account of the mitral and aortic valves as revealed by postmortem studies of the human heart. Silent, 12 minutes.

Pericardiectomy for Constrictive Pericarditis.

John W. Strieder, Brookline, Mass.

This is a case record film demonstrating the difficulties entailed in pericardiectomy for constrictive pericarditis. Silent, 15 minutes.

Abdominal Aneurysm and Replacement with Homograft.

Herbert Adams, Boston.

This film demonstrates the technique of extirpation of an abdominal aneurysm and its repair with a homograft. The technique of sterilization of the graft by x-ray is also shown.

Surgical Treatment of Aortic Stenosis.

Dwight E. Harken and Harrison Black, Boston.

This film demonstrates the various types of aortic stenosis and their successful management by finger fracture.

Tetralogy of Fallot.

John C. Jones, Los Angeles.

This film explains the anatomic features of tetralogy of Fallot and shows the two types of shunting operations that are generally performed to supplement the inadequate flow of blood to the lungs. Sound, 32 minutes.

Treatment of Insidious Segmental Occlusion of the Femoral Artery by Resection and Homograft Replacement.

D. Emerick Szilagyi, Paul R. Overhulse, and Frank Zeller Jr., Detroit.

In the introductory remarks the clinical characteristics of insidious segmental arterial occlusion are briefly stated. The technical steps of the treatment of this lesion by resection and homograft replacement are shown. Some of the finer details of technique are explained with the aid of colored drawings. The role of angiography in diagnosis is pointed out. Sound, 28 minutes.

Ether Analgesia for Cardiac Surgery.

Joseph Artusio Jr. and Frank Glenn, New York.

A technique that makes it possible to maintain a patient in analgesia throughout major cardiac surgery is demonstrated. Five days after the operation, the patient is interviewed and shows that she has total amnesia for the procedure. Sound, 27 minutes.

Anomalies of the Aortic Arch.

George H. Humphreys II, New York.

The normal development of the aortic arch complex is shown in animation based on the work of Congden and others; x-rays and surgery of the operable anomalies are also included. The anomalies shown are patent ductus arteriosus, coarctation of the aorta, four variations of double aortic arch, right aortic arch, dysphagia lusoria, persistent truncus arteriosus, and a bizarre combined anomaly. Sound, 45 minutes.

Thursday afternoon, Dec. 1

Inguinal Hernia and Hydrocele in Infants and Children.

William L. Riker, Arthur De Boer, and Willis J. Potts, Chicago.

This film shows the basic facts about congenital inguinal hernia in infants and children. The embryology is illustrated with modified animation. Essentials for diagnosis are mentioned. Surgery is the treatment of choice and is amply illustrated on the operating table. Sound, 17 minutes.

Pruritus Ani.

Manuel G. Spiesman and Louis Malow, Chicago.

This film gives the authors' simplified classification of pruritus ani and the office and home treatments of each type. Color photographs show the various different pruritides and the application of treatment for each. The clover leaf operation for the intractable type is shown in detail. Silent, 34 minutes.

Routine Anorectal and Sigmoidoscopic Examination with Differential Diagnosis.

Malcolm R. Hill, Los Angeles.

The purpose of this film is to emphasize the importance of anorectal and colonic examination to show the simplicity with which it may be done, and to demonstrate the technique essential to an effective routine. Sound, 30 minutes.

Megacolon (Hirschsprung's Disease) Abdominoperineal Rectosigmoidectomy.

Harry E. Bacon, Philadelphia.

The film is chiefly a presentation of the author's technique in removing the dysfunctioning rectum of Hirschsprung's disease and transplanting the normal sigmoid colon to the anus, where it is anastomosed by the end-to-end technique to the normal rectum. A typical case is described with radiographic studies. A follow-up résumé indicates the success of the operation and return of bowel movements to normal regularity. Silent, 22 minutes.

Extraperitoneal Nephroureterectomy Through an Anterior Abdominal Incision.

Henry Bodner, Allan H. Howard, and Joseph H. Kaplan, Los Angeles.

The anterior abdominal retroperitoneal approach to the kidney is shown. A nephroureterectomy is done through this type of incision. In this manner, two incisions are obviated. Sound, 14 minutes.

Cinefluorography of the Urinary Tract.

Henry Bodner, Allan H. Howard, and Joseph H. Kaplan, Los Angeles.

This film shows motion picture x-ray fluoroscopy of an intravenous pyelogram demonstrating the physiology of the pelvis and ureter. Sound, 17 minutes.

Friday morning, Dec. 2

Prevention of Traumatic Tattoo and Repair of Soft Tissue Injury.

Richard C. Webster, Brookline, Mass.

This film shows an emergency reconstructive procedure carried out on a 3-year-old girl two hours after she was struck by an auto and thrown forcibly to the street. Injuries include traumatic tattoos of neck, shoulder, and back; avulsion of two-thirds of the ear, and deep communicating pockets of street dirt and grit under the scalp. The operation shows the vigorous removal of traumatic tattoos, the repair of the ear, and the cleaning and closure of the scalp pockets. Sound, 11 minutes.

Paracervical Uterine Denervation.

Joseph B. Doyle, Boston.

This is a case record film of the operative technique for paracervical uterine denervation as obtained essentially by cutting the uterosacral ligaments and peritoneal interposition. Sound, 20 minutes.

Orbital Mucoceles.

Hans Von Leden, Chicago.

This is a case record film that shows the diagnosis and surgical treatment for orbital mucoceles. The film shows x-ray sequences of diseased sinuses. Three operative sequences are shown, two of which demonstrate removal of mucoceles and one of which shows the removal of a benign tumor. Silent, 22 minutes.

Abdominal Pregnancy with Living Baby.

Milton L. McCall, New Orleans.

This film shows an abdominal pregnancy at full-term gestation. The patient has had four previous laparotomies, two for pelvic disease and two for intestinal obstruction. Partial intestinal obstruction was present during the present pregnancy. The diagnostic procedures, including history, pelvic examination, abdominal x-rays, hysterosalpingography, and tocography, are shown and the relative importance of each one emphasized. Laparotomy with delivery of living normal full-term infant is shown. Sound, 14 minutes.

Congenital Absence of the Vagina and Its Treatment.

Joseph Gaster, Beverly Hills, Calif.

This is a presentation of two cases showing the embryology and anatomy of congenital absence of the vagina with films taken before, during, and after operation. Both patients had rudimentary uteri, and one patient had a fibroid tumor on a rudimentary uterus. Sound, 25 minutes.

The Rizzoli-Stone Operation for Correction of Atresia Ani Vaginalis.

John G. Matt, Tulsa, Okla.

This motion picture demonstrates the Rizzoli-Stone operation being utilized to correct a case of atresia ani vaginalis. Several slight modifications that have been found to make the operation easier and that yield a better final result are demonstrated. The film also demonstrates the proper technique of using a closed method of anesthesia in pediatric surgery. Sound, 18 minutes.

SPECIAL EVENING FILM PROGRAM: GEORGIAN ROOM, HOTEL STATLER

Wednesday evening, Nov. 30

8:00 p.m.

Myasthenia Gravis: Diagnosis, Treatment, and Management.

Myasthenia Gravis Foundation.

Introduction by Henry R. Viets, Boston.

In this film the incidence of the disease, history behind the present successful diagnosis and treatment, the various tests used in diagnosis, and the clinical course of the disease are discussed. In the section on treatment, the use of prostigmin, mestinon, and mysuran and the great variance in dosage from patient to patient is shown. The management of both cholinergic and myasthenic crises is demonstrated.

Total Right Hepatic Lobectomy.

George T. Pack and Richard D. Brasfield, New York.

Introduction by George T. Pack, New York.

This film demonstrates the authors' technique for removal of the entire right lobe of the liver for cancer in a case where the remaining lobes and the hepatic fissure were not involved by the neoplasm. The patient is shown three months postoperatively.

Note: Mr. Cutler's address to the House of Delegates will be heard by loud speaker in the Georgian Room immediately following Dr. Pack's presentation.

THE SCIENTIFIC EXHIBIT

The Scientific Exhibit will be located in Grand Hall on the main floor of Mechanics' Building, adjacent to the main lecture hall. It will be reached by entrances from the Technical Exposition.

The Council on Scientific Assembly has arranged several features, including the Special Exhibit on Fractures, Manikin Demonstrations on Problems of Delivery, and Demonstrations on Diabetes. In connection with the latter, there will be Question and Answer Conferences on Diabetes daily on the second floor.

The Scientific Exhibit will open Tuesday morning, Nov. 29, at 9 a. m. and will close Friday, Dec. 2, at 12:30 p. m. On the intervening days it will be open from 8:30 a. m. to 5:30 p. m.

The office of the Council on Scientific Assembly will be located in Space 101 in the Scientific Exhibit.

SPECIAL EXHIBIT ON FRACTURES

The Special Exhibit on Fractures is presented under the auspices of the following committee:

Ralph G. Carothers, Cincinnati, chairman.
Herbert W. Virgin Jr., Miami, Fla.
Harry B. Hall, Minneapolis.
Gordon M. Morrison, Boston, emeritus.

Continuous demonstrations will be conducted daily from 9 a. m. to 12 noon and from 2 p. m. to 4 p. m. from Tuesday morning to Friday noon on the following subjects:

Fractures of the Ankle.

Fractures Resulting from a Fall on the Outstretched Hand.

Traction for Arm and Leg.

Basic principles will be stressed, with particular emphasis on the interest of the physician in general practice. Ample opportunity will be allowed for questions, and members of the committee will be present to discuss individual problems with visiting physicians.

A pamphlet giving the essential features of the exhibit has been prepared for distribution.

An outstanding group of surgeons will assist the Committee in the presentation of the exhibit.

PROBLEMS OF DELIVERY—MANIKIN DEMONSTRATIONS

Manikin demonstrations on problems of delivery will be conducted at stated intervals throughout the week by outstanding obstetricians. An opportunity for questions and answers will be given after each demonstration.

Robert H. Barker, Boston, is chairman of the group in charge of demonstrations. The following schedule will be presented:

Tuesday, Nov. 29

1:00 p. m. **Breech Deliveries.**
John W. Schleicher, Hanover Clinic, Hanover, N. H.

4:30 p. m. **Outlet Forceps.**
Crawford H. Hinman, Brookline, Mass.

Wednesday, Nov. 30

10:30 a. m. **Persistent Occiput Posterior.**
John L. Newell, Brookline, Mass.

1:00 p. m. **Deep Transverse Arrest.**
Daniel Abramson, Boston.

Thursday, Dec. 1

10:30 a. m. **External and Internal Podalic Versions.**
Robert Lorimer, Portland, Maine.

1:00 p. m. **Breech Deliveries.**
John W. Schleicher, Hanover Clinic, Hanover, N. H.

4:30 p. m. **Persistent Occiput Posterior.**
Francis Rouillard, Boston.

Friday, Dec. 2

10:30 a. m. **Persistent Occiput Transverse.**
Daniel H. Hindman, Boston.

DIABETES CONFERENCES

In addition to an extensive exhibit on Diabetes Today, there will be a series of question and answer periods on diabetes and its treatment daily from 11 a. m. to 1 p. m. These conferences are sponsored by the Joslin Clinic under the direction of Howard F. Root, Boston.

Emphasis is placed on the fact that questions will be invited from the audience.

The program follows:

Tuesday, Nov. 29

11:00 a. m. **The Insulins.** Leo P. Krall, Boston.

11:30 a. m. **Diabetic Acidosis and Coma.**
Howard F. Root, Boston.

12:00 noon **Panel Discussion on Problems in Treatment.**
Nature of Diabetes. Leo P. Krall, Boston.

Choice of Insulins.
Alexander Marble, Boston.

Hypoglycemic Encephalopathy.
Howard F. Root, Boston.

Wednesday, Nov. 30

11:00 a. m. **Pregnant Diabetics.** Priscilla White, Boston.

11:30 a. m. **Diet and Insulin.** Allen P. Joslin, Boston.

12:00 noon **Panel on Diabetes in Youth.**
Pregnancy. Priscilla White, Boston.

Children of Diabetic Parents.
Howard F. Root, Boston.

"Brittle" Diabetes. Luke Gillespie, Boston.

Thursday, Dec. 1

11:00 a. m. **Treatment of Early Cases of Diabetes.**
Allen P. Joslin, Boston.

11:30 a. m. **Control of Diabetes.** Alexander Marble, Boston.

12:00 noon **Panel Discussion on Treatment of Complications.**
Ocular. Alexander Marble, Boston.

Vascular. Robert F. Bradley, Boston.

Acidosis. Allen P. Joslin, Boston.

Cushing's Syndrome.

R. G. Sprague, J. T. Priestley, Waltman Walters, R. V. Randall, R. M. Salassa, and D. A. Scholz, Mayo Clinic and Mayo Foundation, Rochester, Minn.

Cushing's syndrome in its severe form is a serious condition that impairs survival and is associated with a high degree of morbidity. While its remote causes have not yet been accurately ascertained, it is now well established that the condition is a direct consequence of excessive secretion of steroid hormones by hyperplastic or neoplastic adrenal cortices. No form of medical treatment in our hands has been uniformly effective. The exhibit is based upon 100 cases of Cushing's syndrome studies at the Mayo Clinic and consists of (1) a description of the clinical manifestations of the syndrome, (2) a summary of laboratory and x-ray findings, (3) a review of theories of its pathogenesis and the salient features of its endocrine pathology, and (4) a description of the surgical treatment in patients who have either tumors or hyperplasia of the adrenal cortex, with data and photographs illustrating results of such treatment.

Esophagitis: A Common Condition Frequently Overlooked.

H. W. Schmidt, F. H. Ellis Jr., A. M. Olsen, J. H. Grindlay, and A. H. Bulbulian, Mayo Clinic and Mayo Foundation, Rochester, Minn.

Esophagitis is a relatively common disorder that is frequently overlooked. It usually occurs in association with conditions that produce or permit regurgitation of gastric contents. Thus, the causes of vomiting may be etiological factors in the production of esophagitis. Incompetence of the sphincteric mechanism at the cardia is also an important factor. Such cardial incompetence occurs frequently with esophageal hiatal hernia and as a complication of surgical procedures that destroy the cardial mechanism. This exhibit presents (1) typical case reports illustrating various conditions producing esophagitis; (2) pathological specimens, photomicrographs, and esophagoscopic photographs of esophagitis in man; (3) methods for the experimental production of esophagitis and surgical techniques designed to prevent esophagitis; and (4) various methods of treating esophagitis and its complications.

Serum Glutamic Oxalacetic Transaminase Variations in Heart and Liver Disease.

John S. La Due and Felix Wroblewski, Sloan-Kettering Institute, Research Division of Memorial Center, New York.

The variations in serum glutamic oxalacetic transaminase activity in experimental myocardial infarction, ischemia, and streptococcic toxic myocarditis will be compared with the serum enzyme changes observed in clinical myocardial infarction, coronary insufficiency, and rheumatic carditis. The dynamic changes in serum glutamic oxalacetic transaminase activity in experimental toxic and viral hepatitis will be compared with the changes observed in clinical carbon tetrachloride poisoning and infectious and homologous serum hepatitis. The variations in serum glutamic oxalacetic transaminase activity in cirrhosis and the significance of the increased activity in metastatic carcinoma to the liver will be demonstrated.

Diagnosis by Gastroscopy—Hemorrhagic Lesions in the X-ray Negative Stomach.

Emmanuel Deutsch and Daniel L. Shaw Jr., Tufts College Medical School, Boston.

When a definite bleeding point during gastric hemorrhage is not discovered by x-ray, then gastroscopy can be of considerable help. This exhibit includes slides of drawings showing acute mucosal ulceration and multiple erosions, sliding hiatus hernia, a small broad-based polyp; gastric purpura, anastomotic ulcer, ectasia of gastric mucosa, and a circumscribed carcinomatous ulcer. It also illustrates the value of gastric biopsies and aspiration taken during gastroscopy. The mechanism and clinical features of gastric hemorrhage in the stomach, that is normal on x-ray, are presented together with illustrative cases.

Corticotropin Zinc Hydroxide (Zinc ACTH) in the Collagen Diseases.

Harry E. Banghart and Richard K. D. Watanabe, Hahnemann Medical College and Hospital and Germantown Hospital, Philadelphia.

An evaluation of the effectiveness of a suspension of corticotropin zinc hydroxide in the long-term management of acute disseminated lupus erythematosus (8 cases), dermatomyositis (2 cases), undifferentiated collagen disease (6 cases), and intractable rheumatoid arthritis (22 cases). Data are presented on the effectiveness of the agent in the control of the diseases, dosage required for suppression of the acute symptoms and for the maintenance of this suppression, the duration of action of a single dose of the hormone, and the length of time that repeated doses of the hormone were effective. There are also data on indications and contraindications for the hormone together with studies of its effects on electrolytes, blood sugar, and peptic ulcer and a comparison with corticotropin gel.

Diagnosis of Hemorrhagic Disorders.

Mario Stefanini and James H. Graham, *St. Elizabeth's Hospital and Tufts College Medical School, Boston.*

The exhibit outlines the evaluation of the patient with bleeding disease and briefly describes basic tests to be performed for its proper classification and treatment. A series of diapositives seen through a plastic box shows various clinical and laboratory aspects of hemorrhagic disorders. A schematic description is presented of a series of hemorrhagic disorders of general clinical interest, including vascular purpura, drug purpura, dysproteinemias, fibrinolytic purpuras of gastric, pancreatic, prostatic carcinoma, hemorrhagic accidents of pregnancy, and hemorrhagic accidents following multiple transfusions.

Use and Action of New Long-Acting Corticotropin Preparations—Treatment of Rheumatoid Arthritis.

Heinrich G. Brugsch, Harold S. Rubin, and Edward H. Frieden, the New England Medical Center, Boston.

Charts and drawings demonstrate (1) methods of preparation of corticotropin; (2) methods of assay; (3) effects upon eosinophil count and oxyketosteroids of various preparations; (4) comparative clinical data on effectiveness and duration of aqueous corticotropin, corticotropin gel, and corticotropin zinc; (5) side-effects; and (6) contraindications.

Hypersensitivity as a Mechanism in Vasculitis.

Robert P. McCombs, James F. Patterson, and H. Edward MacMahon, New England Center Hospital, Boston.

The exhibit shows color photographs (transparencies) of skin lesions and photomicrographs of material obtained from these lesions or similar areas at autopsy. In all cases a vasculitis was present. Cases have been selected in which the history strongly suggested that some form of hypersensitivity played an important role in the production of the lesions. Abstracts of the case histories and descriptive material are arranged about the color transparencies.

Prevention of Streptococcic Infection and Rheumatic Fever with Orally Given Penicillin.

Joseph M. Miller, Melvin S. Kaplan, and Benedict F. Massell, House of the Good Samaritan and Harvard Medical School, Boston.

The role of group A hemolytic streptococcic respiratory infection in relation to both initial attacks and recurrences of rheumatic fever will be demonstrated. Original data will be shown regarding attack rates of rheumatic fever after group A hemolytic streptococcic infections prior to the availability of penicillin. The results of controlled studies concerning the applications of penicillin will be demonstrated. The effectiveness of continuous daily oral administration of penicillin will be shown by data on the incidence of group A streptococcic infections among ambulatory rheumatic subjects receiving such prophylaxis and among siblings of these rheumatic subjects for whom daily doses of penicillin were not prescribed.

Blood and Bone Marrow Patterns in the Differential Diagnosis of Disease.

G. Douglas Talbott, Elmer Hunsicker, and Jonah Li, 2750th Hospital, Wright-Patterson Air Force Base, Dayton, Ohio.

This exhibit presents in a concise fashion the principal diagnostic features of many of the important hematological disorders. Patterns rather than cell morphology are stressed. These patterns are illustrated by color transparencies.

Uncommon Heart Diseases.

R. O. Brandenburg, J. E. Edwards, T. J. Dry, and Daniel C. Connolly, Mayo Clinic and Mayo Foundation, Rochester, Minn.

The causes of heart disease are numerous and varied, but approximately 97% is of hypertensive, coronary, or rheumatic origin. Congenital anomalies of the heart constitute about 1% of cardiac disease. There remains a very small group of patients in whom heart disease develops as a result of conditions that are widely diverse and sometimes obscure in origin. The valves, the myocardium, or the pericardium may be involved. The principal manifestation of these rare cardiac disturbances may be difficult to distinguish from those of the common cardiac diseases. For the sake of convenience these rare types of heart disease may be classified as follows: (1) conditions stimulating mitral valvular disease of rheumatic origin, (2) conditions simulating aortic valvular diseases of the usual types, (3) conditions causing myocardial disorders of acute or chronic types, and (4) conditions causing pericarditis of acute or chronic types.

Drug Therapy in Peripheral Vascular Disease.

Irwin D. Stein, Mount Vernon Hospital, Mount Vernon, N. Y.

A distinction must be made between vasodilating drugs that act on vessels of the skin and those that act on muscle. Most of the ganglionic-blocking agents are primarily skin vasodilators and should be employed in the treatment of areas where skin circulation predominates or where a specific effect on such a region is desired, as in the prevention of trophic changes in the digits, the management of Raynaud's phenomena and of sweating, or therapy of ulcerating lesions of the hands and feet. In comparison, there are far fewer measures that have an influence on intermittent claudication, the major symptom of muscle ischemia. With the aid of clinical tests, oscillometry, the measurement of temperature and skin resistance, and the use of the plethysmograph, this distinction between vasodilating measures in common use has been made.

Surgical Treatment of Mitral and Aortic Stenosis.

Dwight E. Harken, Harrison Black, Hugh E. Wilson, and Warren J. Taylor, Peter Bent Brigham Hospital, Boston.

Transparencies demonstrate the pathology of mitral stenosis and mitral insufficiency and the surgical technique for correcting these lesions, and charts demonstrate the differential diagnosis, the preoperative and postoperative care, and an analysis of results in a pilot study of our first 500 valvuloplasties. In addition, there are exhibit books containing illustrations that elaborate on the above subjects as well as describe miscellaneous cardiac procedures, including a new and rational approach to angina pectoris.

Hypertension—Pharmacodynamics of Therapy.

John H. Moyer, Edward W. Dennis, and Ralph V. Ford, Baylor University College of Medicine, Houston, Texas.

The exhibit centers around the pharmacodynamics of various drugs that are used for the treatment of hypertension. An attempt will be made to (1) show how drug responses of hypertensive patients gives information relative to etiological factors in the origin of hypertension, (2) demonstrate renal responses to blood pressure reduction with various antihypertensive agents, especially pentolinium, (3) present an animated illustration of the origin of hypertension and the sites of drug action when treating this disease, and (4) present the clinical application of these principles for the practicing physician.

Resection and Grafting in Treatment of Occlusive Arterial Diseases Affecting the Lower Limb.

D. Emerick Szilagyi, Roger F. Smith, Claibourne P. Shonnard, Nicholas P. D. Smyth, and Gerald A. Lo-Grippo, Henry Ford Hospital, Detroit.

The clinical material on which the exhibit is based consists of 50 cases of segmental occlusive disease of the femoropopliteal and aortoiliac areas treated with resection of the diseased segment and replacement by wet-preserved and lyophilized sterilized homografts. In transparencies of photographs, artist's drawings, and charts, the exhibit portrays the important clinical characteristics of the arterial lesions, the diagnostic procedures (in particular, angiography) essential for their identification, the salient surgical techniques, and the therapeutic results. A pictorial summary of methods of graft procurement and storage particularly suited to the needs of smaller hospitals is included.

Tuberculosis—Every Hospital's Problem.

Frances Kord, Massachusetts Tuberculosis and Health League, Boston.

The problem of unrecognized tuberculosis is shown, with emphasis upon the fact that many cases of unsuspected tuberculosis exist among patients admitted to general hospitals. The danger of caring for persons with unidentified tuberculosis is brought out. The answer to the problem is routine chest x-ray examination of patients at admission and hospital employees.

Differential Diagnosis in Pulmonary Disease.

Frank W. Webster, National Tuberculosis Association and American Trudeau Society, New York.

The exhibit centers around six illuminated chest x-ray plates, each showing a different kind of chest pathology. Viewers are invited to attempt to diagnose the pathology shown in each plate by pressing a button opposite the name of the disease that they believe is involved. If the correct button is pressed, a typed case history above the chest x-ray concerned is illuminated. The exhibit is intended to show that a correct diagnosis can seldom be made from an x-ray alone and that the use of a number of other diagnostic procedures is invariably required.

Tuberculosis of the Skin in Long-Term Observations After Therapy with Isonicotinic Acid Hydrazide.

Robert F. Tilley and John Adams Jr., Massachusetts General Hospital and Harvard Medical School, Boston.

A group of patients with various types of tuberculosis of the skin were treated for one year with isoniazid (isonicotinic acid hydrazide). The exhibit consists of the results one to two years after completion of the treatment. Histological studies, bacteriological procedures, and clinical appraisals were utilized. The results are demonstrated by means of color photographs taken before, during, and after therapy.

Effects of Antimicrobial Therapy of Pulmonary Tuberculosis.

Shirley H. Ferebee and Frank W. Mount, Tuberculosis Program, Division of Special Health Services, Public Health Service, U. S. Department of Health, Education, and Welfare, Washington, D. C.

The exhibit presents a graphic comparison of x-ray change, sputum conversion, and bacterial resistance among patients treated with seven combinations of streptomycin, aminosalicylic acid, and isoniazid.

Chronic Pulmonary Emphysema: *Classification, Physiopathology, and Management.*

Maurice S. Segal, Ernst O. Attinger, and Merrill M. Goldstein, Tufts College Medical School and Boston City Hospital, Boston.

The exhibit shows clinical classification, pathological studies, radiological studies, and pathophysiological data with particular reference to complete pulmonary function studies that include catheterization of the right side of the heart and the mechanics of breathing. There is also included the pathological-physiology, correlated with the specific physiological management for each defect. The data obtained from a typical completely examined patient are illustrated.

Lipoprotein Research.

LAWRENCE J. MILCH, United States Air Force School of *Aviation Medicine, Randolph Air Force Base, Texas.*

The exhibit depicts by the use of charts and photographs the methods of measuring lipoproteins and findings in various disease and injury states.

Evaluation of Poliomyelitis Vaccine.

HART E. VAN RIPER, National Foundation for Infantile Paralysis, Inc., New York.

This exhibit shows the evaluation of vaccine for poliomyelitis and the methods used.

Periodic Health Appraisal: Methods and Results.

ROBERT J. BOLT, O. T. MALLERY JR., and CHARLES J. TUPPER, University of Michigan, Ann Arbor, Mich.

This exhibit demonstrates the methods employed and the results of complete annual checkup examinations. The study includes a period of five years during which 943 examinations were done. Details are given of the methods employed and the type of studies utilized as routine procedures. The results of the examinations are depicted. In addition the manner in which the various diagnoses were made is listed, and the value of the various laboratory and x-ray procedures utilized are analyzed.

At Birth Diphtheria-Pertussis-Tetanus Immunization.

HERBERT D. CHAMBERLAIN, Ohio Academy of General Practice, McArthur, Ohio.

Charts and posters show an experiment over the past six years of immunizing newborn infants with a standard preparation of diphtheria-pertussis-tetanus vaccine.

Systematic Approach to Fluid Balance.

W. D. SNIVELY JR. and M. J. SWEENEY, Evansville, Ind.

This exhibit presents in a simplified manner the underlying principles of clinical fluid balance. It provides "knowledge pegs" upon which to hang the multitude of details required for a working knowledge. A descriptive system of diagnosis based on suggestions by Moyer is presented. The basic imbalances include deficits and excesses in volume, concentration, composition, and distribution of the extracellular fluid that reflect intracellular changes. Each deficit and excess is described as its clinical cause, clinical findings, laboratory findings, and therapy principle. A simple analogy clarifies the use of the milliequivalent. The "teeter totter" method of explaining acid-base imbalances, as introduced by Dr. Snively, is employed in this exhibit to explain acid-base imbalances. Gains and losses of body fluids are presented pictorially. Electrolyte composition of the several body fluids is charted and compared. The seven major functions of parenterally given solutions and the electrolyte content of parenterally given solutions as compared to plasma are presented.

Diabetes Today.

HOWARD F. ROOT, ELLIOTT P. JOSLIN, PRISCILLA WHITE, ALEXANDER MARBLE, ALLEN P. JOSLIN, LEO P. KRALL, and ROBERT F. BRADLEY, New England Deaconess Hospital, Boston.

Placards present data on the treatment of diabetic coma, pregnancy in diabetic patients, diabetes of long duration, and causes of death.

Foetal and Neonatal Morbidity and Mortality.

ALICE M. GOODFELLOW, D. H. BOWDEN, J. NORRIS, and J. L. BLAISDELL, the Research Institute of the Hospital for Sick Children, Toronto, Canada.

The purpose of the exhibit is to demonstrate the important causes of fetal and neonatal mortality and morbidity. Emphasis is placed on preventive and therapeutic measures that may reduce the death rate in this age group. The development of the fetus is depicted in chronological manner in order to present a panoramic picture of fetal and neonatal pathology.

Penicillin Reactions.

CLARENCE A. SMITH and MAURICE KAMP, Division of Special Health Services, Public Health Service, U. S. Department of Health, Education, and Welfare, Washington, D. C.

The incidence of penicillin reactions in over 19,000 patients treated for venereal disease was less than 1%. This incidence is broken down by race, age, sex, and previous treatment with penicillin.

Kerosene Poisoning in Young Children.

A. BRADLEY SOULE JR. and JOSEPH C. FOLEY, University of Vermont College of Medicine, Burlington, Vt.

The accidental ingestion of kerosene results in the commonest form of poisoning in children under the age of 2 years in rural and semirural areas of northern Vermont, as indicated by this study of 150 children admitted to local hospitals during a 10-year period. Approximately half of the children developed pneumonitis, and three died. The exhibit includes serial chest roentgenograms of several typical cases and brief descriptions of clinical and roentgenologic features of the condition with suggestions for management. It also includes presentation of experimental material that indicates that pulmonary changes noted in kerosene poisoning apparently result from aspiration of kerosene rather than from absorption from the alimentary tract.

The Malignant Carcinoid Syndrome—A New Metabolic Disorder.

ALBERT SJOERDSMA, LUTHER L. TERRY, and SIDNEY UDENFRIEND, National Heart Institute, National Institutes of Health, Bethesda, Md.

The exhibit consists of an outline of the human figure showing the anatomic location of the characteristic clinical manifestations of this syndrome. About this figure are colored transparencies showing a patient before and during a characteristic flush and photomicrographs of the carcinoid tumor, as well as charts depicting the other characteristic manifestations. There is also a diagrammatic demonstration of the abnormality of tryptophan metabolism that is responsible for many of the clinical signs and symptoms. Important metabolic studies that have allowed a characterization of this disorder are included.

Thymectomy for Myasthenia Gravis: Anesthetic Management.

JAMES L. VANDERVEEN, Massachusetts General Hospital, Boston.

Posters point out the special anesthetic problems associated with myasthenia gravis. Photographs show the present technique of anesthetic management, including preparation and postoperative management. A discussion, in chart form, of the results of the use of this and other techniques cover experience with over 100 thymectomies extending from 1941 to 1955.

Thymectomy for Myasthenia Gravis: Selection and Supervision of Patients and the Evaluation of Results.

HENRY R. VIETS and ROBERT S. SCHWAB, Massachusetts General Hospital, Boston.

The exhibit presents (1) selection of patients for thymectomy from a group of 400 patients with myasthenia gravis; (2) preoperative regulation of medication, intravenous requirements during operation, and controlling the patient after surgery; (3) selection and evaluation of match controls for comparison with those who have undergone thymectomy; and (4) general results.

Thymectomy for Myasthenia Gravis: Pathology of the Thymus Gland.

BENJAMIN CASTLEMAN, Massachusetts General Hospital, Boston.

The changes in the thymus gland of patients with myasthenia gravis are exhibited, including photographs of specimens removed surgically, thymomas and hyperplasias, and photomicrographs showing the variations in the histology.

Thymectomy for Myasthenia Gravis: Surgical Aspects.

Richard H. Sweet and Oliver Cope, Massachusetts General Hospital, Boston.

The exhibit presents the important aspects of the operative preparation and includes the details of anesthesia and prostigmin administration during operation. Drawings of actual technique are included, together with color transparencies showing typical appearance of thymus at operation and the microscopic characteristics. Charts show important aspects of postoperative care such as prostigmin administration, management of respiratory passage, and comments on causes of postoperative death and how to avoid it.

Clinical Basis of Parkinson Therapy.

Lewis J. Doshay and William Amols, Columbia-Presbyterian Medical Center, New York.

The exhibit presents a comprehensive and practical program of Parkinson therapy. It provides the posology, actions, side-effects, and best methods of administering the standard drugs, such as scopolamine, diphenhydramine, cycrimine, trihexyphenidyl, benztropine, reserpine, chlorpromazine, and other compounds, singly and in combination. A plan is offered for the proper orientation and management of the Parkinson patient, including basic measure of psychotherapy. Physical therapy is discussed in its broadest aspects. The indications for surgical therapy are given consideration.

Senile Degenerations of the Brain and Their Relation to Psychoses and Disease.

George S. Strassmann, Metropolitan State Hospital, Waltham, Mass.

Specimens and photographs are shown from autopsies performed on mentally sick patients over 60 years old, showing (1) nervous system (hemorrhages, thromboses, tumors, meningitis, subdural hemorrhages, and lobotomy); (2) cardiovascular system (aortic thromboses, aneurysm, rupture, endocarditis, and pericarditis); (3) respiratory system (tuberculosis, anthracosis, pneumonitis, empyema, and pulmonary embolism); (4) gastrointestinal tract (peptic ulcers, tumors, diverticula, liver cirrhosis, and gallstones); and (5) other tumors and diseases (pyelonephritis, cancer of prostate, ovaries, and uterus).

Pharmacological Management of Everyday Psychiatric Problems.

Frank J. Ayd Jr., Baltimore, Md.

The exhibit presents the physiological basis for the more common symptoms manifested by the nonhospitalized psychiatric patient. This is followed by an explanation of the pharmacological action of reserpine and the rationale for its use in these patients. The exhibit outlines the use of reserpine in the management of the emergency psychiatric patient whom the physician frequently sees at home. This is followed by the description of the nondisturbed patient seen at the office and the use of reserpine in the management and treatment of this type of patient. The side-effects of reserpine and their management concludes the exhibit.

Improving Senile Behavior with Reserpine/Ritalin—A New Approach.

John T. Ferguson, Traverse City State Hospital, Traverse City, Mich.

The exhibit concerns itself with the oral administration of a new drug combination (reserpine and Ritalin) to 215 patients over 60 years of age. The largest portion of the group studied had some degree of deteriorated senile or arteriosclerotic change, with the subsequent mental symptoms and behavioral pattern associated with these changes. Behavior was evaluated by an 11-point check system. A reduction in original abnormal behavior was achieved in 171 of the 215 patients, while 44 remained essentially the same.

Mental Disorders in the United States: Some Indications of the Size and Scope of the Problem.

William P. Shepard, Earl C. Bonnett, and Herbert H. Marks, Metropolitan Life Insurance Company, New York.

Charts show (1) current statistics and trends in prevalence, incidence, and hospitalization of persons with mental disorders and hospital facilities available for their treatment; (2) the short-term and long-range outlook for persons with mental disorders; and (3) an outline of major community needs and trends relating to care of persons with emotional or mental disorders. The exhibit brings out the extent to which the steady increase in the number of patients hospitalized for mental disease is accounted for by the growth of the population, especially of older persons, by the reduction in mortality of these patients, and other factors. It also presents the results of new research into the longevity of persons with mental and personality disorders.

Thrombosis of the Carotid Artery.

Maurice L. Silver, Miriam Hospital, Providence, R. I.

With the widespread use of cerebral angiography, the diagnosis of carotid artery thrombosis is appearing with greater frequency. This condition explains the appearance, in the age group 30-50, of progressive hemiplegia with or without aphasis. Typical cases are presented, and the characteristic x-ray pictures are demonstrated. The etiology and pathology are discussed, and the treatment by medical and surgical means presented. Beneficial results following resection of the superior cervical ganglion would appear to warrant further trial of this therapy.

Management and Rehabilitation of Emotionally Maladjusted Children.

James A. Flaherty, Governor Bacon Health Center, Delaware City, Del., and Robert L. Gatski, Danville State Hospital, Danville, Pa.

The exhibit deals with the problem and present-day management of severely and chronically disturbed children in a residential treatment center. It points up the need for recognition and treatment in the early states of the disturbance. Charts, graphic analyses, and representative case histories summarize experience with chlorpromazine as an adjunct to treatment.

The Helping Hand—Rehabilitation of the Psychiatric Patient.

Delilah Riemer, Hugh E. Kilmartin, Walter Feri, Charles Kinnard, Raymond Nilson, Harold Shalik, and Raymond Slater, Veterans Administration Hospital, Bedford, Mass.

This exhibit demonstrates ways to bring about the rehabilitation of the psychiatric patient through one or more programs for short-term and continued treatment of regressed and general medical and surgical patients. The objectives to accomplish these programs are essentially the same for all the therapies and are directed toward the relief of mental and physical symptoms and signs. In the rehabilitation of the psychiatric patient, the therapies of the physical medicine and rehabilitation service work with the entire rehabilitation team. They use their respective modalities and activities as tools of treatment directed toward achieving one of three levels of rehabilitation; namely, increased independence during hospital living, sheltered living, and full community living.

Tic Douloureux—Treatment by Injection of Boiling Water into the Gasserian Ganglion.

Rudolph J. Jaeger, William H. Whiteley, and David J. La Fia, Jefferson Hospital, Philadelphia.

During the past two years a technique has been used for controlling the pain of tic douloureux and cancer of the face by the destruction of the gasserian ganglion cells with boiling water. Cases have been purposely selected because of the poor operative risk involved. The results have been equal if not superior to the operative methods of controlling this disorder, but this method requires certain meticulous technical details in order to be successful and avoid complications. The technique and postoperative results are shown by the exhibit.

Effects of Chlorpromazine on Acute and Postalcoholic States.

JOSEPH F. FAZEKAS and JAMES G. SHEA, District of Columbia General Hospital, Washington, D. C.

The exhibit reviews laboratory and clinical results with chlorpromazine in more than 500 alcoholic patients. It is based on data derived from studies on (1) the influence of chlorpromazine and alcohol on cerebral hemodynamics and metabolism, (2) the use of chlorpromazine in patients with head injuries associated with alcoholism, and (3) the efficacy of chlorpromazine in relieving psychomotor excitement and nausea and vomiting in acute alcoholic states.

Modern Concepts in the Therapy of Chronic Alcoholism.

EBBE C. HOFF, J. DAVID MARKHAM, and MARVIN C. BECKER, Virginia Division of Alcohol Studies and Rehabilitation, Medical College of Virginia Hospital, Richmond, Va.

The exhibit outlines present methods in treatment and rehabilitation of chronic alcoholics by private physicians. It includes selection of patients and gives a detailed demonstration of Antabuse-alcohol reaction by using a manikin, together with the role of Antabuse in treatment, follow-up treatment, prognosis, and results.

Pheochromocytomas—A Clinicopathological Analysis of Thirty-Eight Cases.

MEYER M. MELICOW, Squier Urological Clinic, Columbia-Presbyterian Medical Center, New York.

The exhibit is divided into three parts: (1) clinical studies showing cases associated with paroxysmal hypertension, cases associated with sustained hypertension, and a miscellaneous group in which diagnosis was made at operation or autopsy; (2) pharmacological studies showing the analysis of laboratory findings in relation to clinical behavior and wherever possible to pathological findings; (3) pathological studies showing intra-adrenal pheochromocytomas, multiple pheochromocytomas, extra-adrenal pheochromocytomas, and histology with benignity versus malignancy and hibernating fat.

Treatment of Gastric Cancer.

GEORGE T. PACK, GORDON P. MCNEER, KATHLEEN E. ROBERTS, DOUGLAS A. SUNDERLAND, LOUIS G. ORTEGA, and HENRY T. RANDALL, Memorial Hospital, New York.

The exhibit covers three phases in the treatment of cancer of the stomach: (1) pathological studies based on autopsy and investigation of specially cleared surgical specimens for lymph node distribution of metastasis, with certain conclusions regarding surgical technique; (2) metabolic changes in humans after total gastrectomy; and (3) end-results of treatment.

Carcinoma of the Lung.

HERBERT D. ADAMS, DAVID P. BOYD, and CARLTON H. SOUDERS, Lahey Clinic, Boston.

This exhibit covers general statistical data elicited from a detailed study of over 400 cases of bronchogenic carcinoma. Causes of delay in diagnosis and treatment are stressed. Color photographs feature surgical procedure, emphasizing diagnosis and pathological consideration and including lesions confused with cancer of the lung. Therapy, including pneumonectomy combined with super voltage x-ray therapy, is presented.

Investigative Approaches to the Lung Cancer Problem.

EMERSON DAY, WILLIAM G. CAHAN, LEOPOLD G. KOSS, ERNEST L. WYNDER, HOLON W. FARR, GEORGE N. PAPANICOLAOU, and WALTER E. O'DONNELL, Memorial Center, New York.

The investigative approaches to the lung cancer problem is considered from three standpoints. The first is epidemiological and environmental. This includes a summary of all the environmental factors, especially cigarette smoking, which have been established as playing an important role in the pathogenesis of lung cancer and particularly in its recent sharp rise in incidence. Studies done both at this institution and elsewhere are summarized. The differences and relative advantages of the retrospective and prospective studies are considered. The second standpoint is laboratory, and the means by which tobacco tar is currently being subjected to biological testing on laboratory animals is depicted. The various methods of establishing the carcinogenicity of the various fractions of tobacco tar with a view toward their eventual modification or removal from human exposure are depicted. From the clinical standpoint, representative study of the clinical effect of the long-term smoking habit on human respiratory mucosa is illustrated.

Carcinoma of the Larynx: Study Based on Twenty-Five Years' Experience.

CHEVALIER L. JACKSON, JOHN V. BLADY, and CHARLES M. NORRIS, *Temple University Hospital, Philadelphia.*

The exhibit shows transparencies of indirect and direct laryngoscopic views and operative specimens and the varied appearances of carcinoma of the larynx and laryngopharynx. Criteria for the selection of treatment are to be presented in relation to end-results. Management of "precancerous" lesions as well as early and advanced cancer is included.

Adenomas of the Colon and Rectum.

ROBERT TURELL, ROBERT PARADNY, and AUBRE DE L. MAYNARD, New York.

This exhibit deals with the incidence, distribution, types, genesis, familial tendency, cancer potential, and treatment of discrete, single, or multiple scattered adenomas. These items are illustrated by transparencies of photographs and photomicrographs. The major portion of the exhibit is devoted to treatment and illustrates the newest electrothermic methods and surgical techniques.

Experimental Procedures for Inducing Acceptance of Tumor Homografts.

GEORGE D. SNELL, NATHAN KALISS, and ANDREW A. KANDUTSCH, R. B. Jackson Memorial Laboratory, Bar Harbor, Maine.

The main problem of reparative surgery is the hostile reaction set up in the recipient against grafted tissues from a foreign donor. The demonstration shows successful experimental methods used in mice to abrogate their normal resistance to tumor homografts. These methods employ prior injection into the prospective host of suitable tissue preparations or antiserums to the tissues. The main lines of investigation directed toward elucidating the biological mechanisms underlying the induced acceptance of tumor homografts are demonstrated.

Megaloureter.

ORVAR SWENSON, JAMES M. BATY, and JOHN H. FISHER, Boston Floating Hospital for Infants and Children, Boston.

There are several causes of megaloureter. The diagnostic techniques required to separate these patients into their proper categories are displayed and the treatment of the various types illustrated.

Surgery of the Gallbladder and Bile Ducts.

JOHN L. MADDEN, WILLIAM J. MCCANN, and JOHN M. LORF JR., St. Clare's Hospital, New York.

In the belief that the internal splint supports or stents are foreign bodies that produce an undesirable tissue reaction, the necessity of their continued use in reconstructive surgery of the common duct is questioned. The exhibit demonstrates the technique and incidence of exploration of the common duct and the results of both a clinical and an experimental study of the effectiveness of primary reconstruction of the common duct without stent supports. The results of this study question the necessity of stents or prolonged catheter drainage in reconstruction of the common duct.

Congenital Dermal Sinus Tracts.

Franc D. Ingraham, the Children's Hospital, Boston.

The exhibit includes illustrations of intracranial extensions and intraspinal extensions of congenital dermal sinus tracts with pathology and histology. Photographs of patients, x-rays, operative findings, and specimens are shown.

Factors in the Pathogenesis of Acute Pancreatitis—An Experimental Study.

M. A. Block, L. S. Fallis, and R. W. Hansen, Henry Ford Hospital, Detroit.

Acute pancreatitis is divided into two major types as seen clinically: (1) the acute edematous pancreatitis and (2) hemorrhagic pancreatitis with pancreatic necrosis. Our experimental studies on rats and dogs indicate that the acute edematous form can be produced by obstruction of the pancreatic ducts whether or not a common channel with the common bile duct is present. The degree of pancreatic necrosis is not great. Hemorrhagic pancreatitis can be produced by occlusion of the vascular supply of the pancreas whether or not there is concomitant occlusion of the pancreatic ducts. Fat necrosis is most marked when occlusion of the pancreatic ducts is present. Illustrations are used as evidence to support these conclusions, and the experimental findings are correlated with clinical observations. Other factors, considered secondary in significance, are also enumerated.

Intravenous Cholangiography in Clinical Surgery.

Robert E. Wise and Kenneth W. Warren, Lahey Clinic, Boston.

The exhibit shows the results of over 400 injections of cholografin with particular reference to the concept of partial obstruction of the common bile duct due to calculi, fibrosis of the sphincter of Oddi, or stricture or other cause. Emphasis is placed on the criteria for diagnosis of partial obstruction of the common bile duct and the results of surgical explorations and treatment thereof.

Hypoparathyroidism.

E. E. Mason, R. T. Soper, and J. A. Buckwalter, State University of Iowa College of Medicine, Iowa City.

This exhibit is based upon a review of the course of 50 patients with postoperative hypoparathyroidism, 2 patients with pseudohypoparathyroidism, and one with idiopathic hypoparathyroidism. A brief review of the anatomy, embryology, physiology, histology, and pertinent historical data is presented in the form of charts, diagrams, and drawings. Diagnosis, laboratory methods employed, and the course of the disorder in these patients is shown. The action of parathormone, AT-10, and a vitamin D-high-calcium regimen is presented diagrammatically and with suitable representative diagrammed case histories. Emphasis is placed upon the cataracts, neurological, and other long-term sequelas developed by poorly controlled patients, with follow-ups extending more than 30 years. Finally a practical method of management is suggested, the role of the patient and his physician being suggested.

Surgical Treatment of Obliterative Arterial Disease and Arterial Aneurysm.

Charles A. Hufnagel and Pierre J. Rabil, Georgetown University Hospital, Washington, D. C.

The various methods for arterial reconstruction of major arterial trunks are shown by means of transparencies, together with illustrative cases of typical types of arterial obstruction and location of aneurysms from clinical cases. The methods of restoring arterial continuity with use of flexible plastic prosthesis, homografts, and heterografts, are shown as applied to the various lesions. A summary of the clinical results is given.

Usefulness of Chlorpromazine in a Variety of Clinical Problems.

Charles E. Friedgood, State University of New York College of Medicine, Brooklyn, N. Y.

The exhibit summarizes experience with chlorpromazine in more than 400 patients, with particular emphasis on the use of the drug, alone and with local and general anesthetics, in minor surgery. It includes results obtained in using chlorpromazine: (1) to control intractable hiccoughs, (2) to control persistent nausea and vomiting, (3) to relieve pain inadequately relieved by narcotics alone, and (4) to produce hypothermia. Charts, tables, photographs, and case histories show the results obtained.

Rheumatoid Arthritis.

Dwight C. Ensign and John W. Sigler, Henry Ford Hospital, Detroit, and Donald F. Hill and W. Paul Holbrook, Tucson, Ariz.

The importance of early and accurate diagnosis of rheumatoid arthritis is emphasized as a basis for adequate therapy. The salient features of diagnosis and differential diagnosis are presented. Photographs and roentgenograms depict characteristic features of the various stages of the disease. A comprehensive program of therapy is outlined, including the education of the patient in the nature of his disease, the use of general therapeutic measures of proved value, and the necessity of balanced rest and corrective exercises. Supplemental measures such as gold salts and steroids are presented. Photographs illustrate the usefulness of splints and other rest measures and simple devices to aid in daily activities.

Juvenile Rheumatoid Arthritis.

Robert E. Barkin, Theodore B. Bayles, Theodore A. Potter, and J. Sydney Stillman, Robert Breck Brigham Hospital, Boston.

The exhibit includes a graphic presentation of the life history of rheumatoid arthritis in children, with prognosis and therapy.

Treatment of Rheumatoid Arthritis with Prednisone.

Russell L. Cecil, William H. Kammerer, and Richard H. Freyberg, New York Hospital Arthritis Clinic, New York.

This exhibit consists of charts, graphs, and photographs demonstrating the physiological and striking therapeutic effect of a new steroid hormone in rheumatoid arthritis and other rheumatic diseases. Prednisone is a synthetic steroid that possesses the physiological activity of an adrenocortical hormone. Its antirheumatic effect has been demonstrated to be much superior to that of cortisone or hydrocortisone, and physiological side-effects up to the present time have been minimal. Charts and graphs show the effect of this hormone upon various clinical and laboratory aspects of rheumatic disease, such as blood morphology, sedimentation rate, total eosinophil count, 17-ketosteroid excretion, and blood electrolytes. Photographs of the affected joints will demonstrate the clinical improvement.

Gout and Probenecid.

Richard T. Smith, Benjamin Franklin Clinic, Philadelphia, and William P. Boger, Norristown State Hospital, Norristown, Pa.

Data are presented showing the long-term benefits of the use of probenecid not only in the control of hyperuricemia but also in the direction of lessening the size of established tophi, preventing the formation of new tophi, and the actual healing of certain destructive tophaceous lesions. Roentgenologic evidence of the healing of destructive lesions in the bones of gouty patients is presented. The physiological influences of probenecid in the gouty patient are shown and case reports presented to show the alleviation of the course of chronic gout both in terms of uric acid deposition and in reduction of the number of acute gouty attacks. The use of probenecid is correlated with the use of other medicaments such as colchicine, phenylbutazone, salicylates, and steroids in the management of gout.

The U Wave of the Electrocardiogram.

EUGENE LEPESCHKIN and BORYS SURAWICZ, Bishop De Goesbriand Hospital, Burlington, Vt.

The exhibit on the U wave presents the clinically important results of a symposium held in Burlington in 1954. Tables, charts, diagrams and enlarged copies of electrocardiograms are shown.

Stages of Early Cerebral Palsy Behavior.

LAWRENCE J. LINCK and JAYNE SHOVER, National Society for Crippled Children and Adults, Inc., Chicago, and ERIC DENHOFF and RAYMOND H. HOLDEN, Crippled Children and Adults of Rhode Island, Inc., Providence, R. I.

Five stages of early cerebral palsy development are described, and therapeutic principles and methods are correlated. Based on these principles, simple office procedures can be prescribed in preparation for preschool experiences.

Rehabilitation of the Arteriosclerotic Amputee.

RICHARD WARREN and JOHN G. BISGROVE, Veterans Administration Hospital, West Roxbury, Mass.

The exhibit includes (1) an outline of the duties of doctors and others in rehabilitation of the patients; (2) photographs of a patient with an above-knee amputation at various stages of his convalescence illustrating the important points in management; (3) samples of artificial limbs; and (4) patients who will be in the booth to give firsthand demonstrations.

Hydrotherapeutic Tanks—New Design All Purpose Tank.

RALPH E. WORDEN and JAMES A. PATTERSON, Children's Hospital, Columbus, Ohio.

A new design in the hydrotherapeutic and recreational tank is shown in scale-model form. It can be made of steel or stainless steel. Specifications, cost, and technical problems of installation are included. The tank has three compartments; over-all dimensions are 12 by 24 ft., depth from 2 ft. to 4.5 ft. The three tanks have separate temperature control, separate water inlet and outlet, and a complete filtration unit that is included in the model. The technique of temperature control and water circulation and filtration will be demonstrated. New types of hydrotherapeutic techniques made possible will be demonstrated.

Low Back Pain.

GEORGE S. HACKETT, Canton, Ohio.

The exhibit shows an enlarged plastic lumbar and pelvic skeleton with ligaments, trigger points, needles for diagnosis and treatment, and referred pain areas in groin, buttock, and extremities that have been identified from 3,000 injections. Photostats of animal experiments over a three-year period reveal a permanent increase of bone and fibrous tissue by proliferation, which explains the clinical results of 82% of cures in 528 cases in the past 16 years. Charts of statistics and methods are presented.

The Rehabilitation Center: Its Role in Recovery.

W. SCOTT ALLAN, Liberty Mutual Insurance Company, Boston.

The exhibit demonstrates the role of the rehabilitation center in the community program and particularly the importance of its application to industrial cases. The rehabilitation center acts as a supplement to the care received from the attending physician and bridges the gap between hospital and return to work with an individualized program directed at maximum recovery of function and adjustment to physical handicap. A coordinated program of therapy, testing, and counseling, all under medical supervision, provides an effective method of reducing loss in industrial accidents. As a working tool the center becomes an integral part of the community medical and health services interested in the restoration of the individual to an effective physical, social, and economic whole.

Biochemical and Nutritional Effects of Lysine-Reinforced Infant Diets.

ANTHONY A. ALBANESE, REGINALD A. HIGGONS, GERTRUDE M. HYDE, and LOUISE ORTO, St. Luke's Hospital, New York, and St. Luke's Convalescent Hospital, Greenwich, Conn.

Established data on amino acid infant requirements indicate that optional growth and nutrition might be achieved when the dietary provides a lysine tryptophane (L/T) ratio of 6.3. Since the L/T ratios of most foods employed for infant feeding, with the exception of some meat products, are lower than the growth L/T, it was felt that the nutrition of infants, especially those with poor appetites, might be improved by lysine supplementation of the diet. Objective measurements on 35 infants showed that marked positive weight response and nitrogen retention, as well as elevations in plasma proteins and hemoglobin values, were associated with lysine additions to the diet of most infants.

Radioisotopes in the Study of Blood Cell Survival and Blood Volume.

EDMUND W. CAMPBELL, WILLIAM DAMESHEK, MARTIN VERLOOP, and WALTER J. SMALL, New England Center Hospital, Boston.

Demonstration of the methods of tagging blood cells in humans and how the results obtained are interpreted is presented. The technique of measuring red blood cell survival is demonstrated as measured by the radioactive sodium chromate technique. Normal results are compared with those of hemolytic anemia. A technique for evaluating platelet survival is compared with that found in hematological disorders such as leukemia, idiopathic, thrombocytopenic purpura, and polycythemia vera. Determination of blood volume as measured by the radioactive chromic chloride tagging technique is presented. Values obtained in the normal and abnormal states (e. g., polycythemia vera) are compared.

Modern Medical Pitchmen.

OLIVER FIELD, Bureau of Investigation, American Medical Association, Chicago.

This exhibit exposes contemporary quacks and faddists, comparing them to the old-time medicine man who operated from the rear of his wagon. The essentials of the method of operation of each of those mentioned are revealed, together with a brief account of any federal or state regulatory action against the principals.

Medical Aspects of Sport Diving.

ROBERT D. WORKMAN, Experimental Diving Unit, U. S. Naval Gun Factory, Washington, D. C.

The exhibit presents the major types of diving accident that may now confront practicing physicians in many areas. It graphically portrays the etiology and usual circumstances of these accidents, their proper management, and the physician's role in the prevention of such accidents.

Three Centuries of New England Medicine.

EVERETT R. SPENCER JR., Boston Medical Library, Boston.

The exhibit illustrates the growth and development of medicine in New England from the time of Samuel Fuller, the Mayflower physician, to the present, by means of books, letters, photographs, papers, and records now contained in the Boston Medical Library. Seven separate periods are shown as follows: (1) the Colonial Period (1620-1700); (2) the 18th century to 1775; (3) the American Revolution and its aftermath, with the formation of the Massachusetts Medical Society and the development of the Harvard Medical School; (4) the 19th century to 1846; (5) ether anesthesia; (6) medicine in the last half of the Century; and (7) the modern period from 1900 to 1955. A brief printed outline of the highlights of the exhibit will be available.

Medical Practice Facilities.

GEORGE W. COOLEY, Council on Medical Service, American Medical Association, Chicago.

Pictures and descriptive material show various factors to consider in the building or remodeling of physician's office facilities and include various office and equipment arrangements.

The Wood Light—A Diagnostic Tool.

F. Ronchese, Boston University School of Medicine, Boston.

Black and white and color enlargements of dermatoses shown side by side, one taken with ordinary light, the other with the Wood light as the only source of illumination, demonstrate the value of the examination of the skin and mucous membranes under the Wood light, especially for conditions such as ringworm of the scalp, tinea versicolor, vitiligo, psoriasis, atabrine intake, avitaminosis B, external applications, and advanced ulcerated epidermoid carcinoma.

Radiological Diagnosis of Hiatus Hernia.

Leslie K. Sycamore, Mary Hitchcock Memorial Hospital, Hanover, N. H.

Diagnosis of hiatus hernia may present a difficult radiological problem. The exhibit indicates fundamental considerations of anatomy and physiology and illustrates various types of hernia and points of differential diagnosis.

Microanatomy of the Epidermis and Its Appendages.

George Hambrick and Harvey Blank, Columbia University Medical Center, New York.

The exhibit consists of photomicrographs and drawings of recent observations of skin structures. With the aid of collagenase and other chemicals, the pilosebaceous and sweat duct structures have been prepared intact and examined in whole mounts as well as in vertical sections. Various aspects of these structures are illustrated as seen with histochemical techniques and with various types of microscopy.

A Portable Blood Dialyzer: First Trials of Clinical Model 1954-1955.

Arthur E. MacNeill and John E. Doyle, University of Buffalo School of Medicine, Buffalo.

The complete portable clinical blood dialyzing equipment now under clinical trial will be exhibited. Clinical experiences with the MacNeill Mark XI, a blood dialyzer, will be presented by chart, diagram, and photographs of patients under treatment. The Mark XI, a blood dialyzer, is approximately 2 by 3 by 24 in. (5 by 7 by 70 cm.) in size and with all associated equipment can be packed into a portable container 10 in. in diameter and 24 in. long. The ready portability of equipment and its very small size enables treatment of a patient in an ordinary hospital room. Details of this will be exhibited. Essential auxiliaries, such as blood vessel cannulas, simple flow meters, and portable dialysis fluid containers will be exhibited also.

Roentgen Abnormalities of the Large and Small Intestine Associated with Prolonged Cathartic Ingestion.

Norman Heilbrun and Charles Bernstein, University of Buffalo School of Medicine, Buffalo.

In a series of patients, each of whom had ingested irritant cathartics daily for at least 20 years, original film studies are presented revealing the stages of development and severity of the entercolitis-like changes encountered in the large and small intestine. The significance of the absence of a clinical history of diarrhea, crampy or painful bowel movements, and melena is emphasized, particularly in the differential diagnosis from ulcerative colitis and the so-called irritable colon. A theoretical basis for the roentgen findings and the relationships to the types of cathartics ingested are considered.

Ragweed Control: What Can and What Cannot Be Done.

Oren C. Durham, Abbott Laboratories, North Chicago, Ill., and Bernard B. Siegel and Matthew Walzer, Jewish Hospital of Brooklyn, Brooklyn, N. Y.

Ragweed control means ragweed pollen control to the physician. With the advent of selective chemical herbicides a steadily increasing interest is being manifested by the public and by public health and sanitary engineers in ragweed eradication. Owners of health resorts and would-be health resorts are particularly interested. Roadside spraying with 2-4D is being fostered by chemical manufacturers and militant lay organizations.

Female Sterility.

Frederick H. Falls and Charlotte S. Holt, University of Illinois College of Medicine and Illinois State Department of Public Health, Chicago.

The exhibit consists of charts, drawings, medical sculptures, and plastic carvings illustrating the etiology, diagnosis, and treatment of the various phases of human sterility problems. The sculptures are to scale, and actual instruments are used to add realism to the visual educational presentation. The male factors are depicted as would be considered by the obstetrician in his contact with a patient from the laboratory standpoint.

Man's Assumption of an Erect Posture: Influence on Unengagement of Fetal Head.

Joshua William Davies and Elise Renning, St. Luke's Hospital, New York.

This exhibit is an attempt to show that the pelvis did not rotate as man assumed the erect posture. The body of the pubic bone therefore is horizontal in the erect posture as it is in the quadruped. The long bore of the abdominal cavity and the bore of the pelvis are at right angles to each other. Before the onset of labor the entire fetus is contained within the abdominal cavity. It does not pass directly into the pelvic cavity with the onset of labor but must negotiate the lumbosacral angulation of 90 degrees. The exhibit suggests aggressive means whereby an unengaged fetal head may be assisted to enter the pelvic inlet. Its main value is with engagement of the after-coming head in breech presentation.

A New Frontier in Private Practice.

A. Clair Siddall, Oberlin, Ohio.

Attention to individual preventive medicine constitutes a new frontier in private practice. A report is given of an 11-year investigation in which presumably well women were given semiannual examinations, with the focus of interest on the early detection of cancer. Three thousand fifteen examinations have been made on 1,428 women, and 20 cancers have been found, along with 540 benign lesions. Problems of nutrition, work, recreation, rest, marital relations, and minor psychiatric disturbances were considered and treated, thus carrying out individual preventive medicine in the private practice of gynecology.

Current Practical Gynecology.

Walter J. Reich and Mitchell J. Nechtow, Chicago Medical School, Cook County Hospital, and Cook County Graduate School of Medicine, Chicago.

This exhibit deals with problems as they arise in everyday practice of gynecology, be they in general practice or in a specialty. It also deals with the diagnosis, differential diagnosis, and management of conditions in children (pediatric), in adolescents or teen-agers, in childbearing women, in geriatric patients, and in patients with psychosomatic problems. Acute and chronic gynecologic conditions requiring surgery are discussed in differential diagnosis.

Foreign Service Provides a Worldwide Clinical Laboratory.

H. van Zile Hyde and John J. Hanlon, Division of International Health, U. S. Department of Health, Education, and Welfare, Public Health Service, and Public Health Division of International Cooperation Administration, Washington, D. C.

The exhibit is a replica of a clinical laboratory in the tropical areas. On the work bench are pathological materials and data encountered in the physical and laboratory diagnoses of clinical and subclinical cases of malaria, schistosomiasis, trypanosomiasis, smallpox, leprosy, filariasis, enteric infections (amebiasis, bacillary dysentery, and infectious hepatitis) and an unknown Bolivian virus infection.

REPORTS OF OFFICERS

REPORT OF THE SECRETARY

To the Members of the House of Delegates of the American Medical Association:

The following annual report of the Secretary is respectfully submitted:

Membership

The trend toward increased membership in the American Medical Association continued during the year ending June 30, 1955. The income from membership dues for the first six months of 1955 was $3,014,255.00, which was an increase of $132,040.00 over the same period for 1954. The number of physicians holding membership in the Association increased by 6,567 during the year ending June 30, 1955, as compared with the same period ending June 30, 1954. A breakdown of the membership records as of June 30, 1955, indicates the following:

Active Paid Members	123,462
Active Members (dues unpaid for 1955)	7,649
Active Members exempted from payment of dues	11,167
Associate Members	4,821
Service Members	8,402
Affiliate Members	282
Honorary Members	95
Total	155,878

The total number of members at the present time exceeds by several thousand the number reported in any previous year, even including the years when there were no membership dues.

The table below shows physician members of state and territorial medical associations and the American Medical Association. Comparative figures are given as of June 30, for 1955 and 1954:

	Active				
	Dues Paying	Exempt	Associate	Total 1955	Total 1954
Alabama	1,352	274	..	1,626	1,563
Arizona	721	34	42	797	743
Arkansas	934	168	..	1,102	1,054
California	12,826	588	713	14,127	13,051
Colorado	1,526	48	409	1,983	1,821
Connecticut	2,372	180	3	2,555	2,446
Delaware	306	40	..	346	306
District of Columbia	1,175	104	155	1,434	1,388
Florida	2,371	192	56	2,619	2,348
Georgia	2,076	159	102	2,337	2,273
Idaho	488	33	2	523	498
Illinois	8,587	1,138	5	9,730	9,636
Indiana	3,080	570	1	3,651	3,609
Iowa	1,996	419	..	2,415	2,414
Kansas	1,326	286	4	1,616	1,525
Kentucky	1,638	97	109	1,844	1,748
Louisiana	1,708	47	70	1,825	1,650
Maine	555	110	5	670	639
Maryland	1,674	130	23	1,827	1,848
Massachusetts	4,499	678	18	5,195	5,113
Michigan	5,167	437	126	5,730	5,487
Minnesota	2,820	442	63	3,325	3,319
Mississippi	1,119	145	3	1,267	1,229
Missouri	2,789	631	2	3,422	3,376
Montana	469	34	45	548	522
Nebraska	1,137	110	5	1,252	1,237
Nevada	162	...	..	162	156
New Hampshire	465	68	10	543	540
New Jersey	5,096	274	320	5,690	5,237
New Mexico	440	47	..	487	434
New York	17,099	446	797	18,342	17,603
North Carolina	2,461	201	2	2,664	2,522
North Dakota	364	31	..	395	381
Ohio	7,024	522	..	7,546	7,121
Oklahoma	1,346	372	32	1,750	1,711
Oregon	1,157	87	257	1,501	1,380
Pennsylvania	10,205	302	838	11,345	11,177
Rhode Island	670	92	1	763	735
South Carolina	1,082	136	..	1,218	1,173
South Dakota	388	38	5	431	421
Tennessee	2,088	199	1	2,288	2,196
Texas	6,234	333	238	6,805	6,017
Utah	663	77	1	741	656
Vermont	364	49	..	413	414
Virginia	1,697	211	10	1,918	1,858
Washington	2,283	248	..	2,531	2,436
West Virginia	1,317	86	78	1,481	1,478
Wisconsin	2,869	202	219	3,290	3,250
Wyoming	227	11	1	239	231
Alaska	65	1	1	67	61
Canal Zone	13	16	8	37	48
Hawaii	390	23	41	454	508
Puerto Rico	224	1	..	225	85
A. M. A.	7	...	..	7	.....
Total	131,111	11,167	4,821	147,099	140,672
Service Members				8,402	8,276
Affiliate Members				282	268
Honorary Members				95	95
Total				155,878	149,311

As of June 30 there were approximately 7,649 physicians whose American Medical Association membership status for the year 1955 had not yet been established through their constituent medical associations. A list of these physicians has been forwarded for review to the secretary of each constituent society, and direct notices to the physician are being mailed during September. If the physician's eligibility for continued membership is not established for the year 1955, the physician will be dropped from membership in the American Medical Association under the provisions of Chapter III, Section 5 of the Constitution and Bylaws. A physician cannot be reinstated to membership until his dues delinquency for the year in which he was dropped from membership is cleared through his constituent medical society.

The conversion of the manual operation of the membership records to an IBM key punched card system was completed during the last fiscal year. The increased efficiency and flexibility of this new system has made it possible to mail the Membership Pocket Card to the physician within a reasonable time after membership status has been established with the Membership Department by the constituent society. Also, new American Medical Association members now receive the first copy, and back issues, of the publication they have chosen as a benefit of paid membership immediately after dues payment is recorded.

The secretaries of constituent and component medical associations have cooperated whole-heartedly, and many of them have been instrumental in revising their local membership regulations to conform with the standard pattern of membership set by the Association's Constitution and Bylaws.

Actions of the House of Delegates at 1955 Annual Meeting

In a special letter to the secretaries of the constituent state and territorial medical associations, the Secretary called the attention of these executives, for such reference and implementation as might be indicated, to actions of the House of Delegates at its Atlantic City session in June, as follows:

Supplementary report of the Board of Trustees "I" on Guides for Grievance or Mediation Committees. The action of the House on this report was to urge the constituent and component societies "to lend their support to the study and assist the committee in developing a practical set of guides."

Supplementary report of the Board of Trustees "H" on Civil Defense. In this report the Board of Trustees recommended, and the House approved the recommendation, that "the state and county medical associations be urged to participate aggressively in civil defense programs."

Resolution No. 21 on Automotive Safety. It is asked that you send this resolution to the proper authorities in your state.

Report of the Reference Committee on Medical Military Affairs on Resolution No. 55 on Civil Defense, in which each constituent association is urged "to develop a practical program for carrying out its medical civil defense responsibilities."

Several replies were received, and it is evident that the constituent associations are ready and willing to cooperate in every way possible with the expressed wishes of the House of Delegates.

Copies of Resolution No. 71 on Draft of Medical Students were sent, through the Washington Office, to the President of the United States and to all members of both houses of Congress. As a result of this, it was possible to publish the following statement in THE JOURNAL.

> After protest by the American Medical Association House of Delegates against the drafting of students who temporarily interrupt their medical education to become science teachers, the National Selective Service System is altering its policy and advising that these students now be deferred. The House of Delegates at its June meeting pointed out that schools of medicine are dependent on the services of students who interrupt their junior or senior years to become assistants in physiology, pathology, anatomy, physiological chemistry, bacteriology, or other preclinical departments. The resolution declared in part: "The training of the medical students of today and in the years which lie ahead will be seroiusly jeopardized if the present policy of Selective Service with regard to drafting of medical students who drop out of schools to become assistants and teachers of preclinical subjects is permitted to continue." At the same time the House of Delegates instructed that a copy of the resolution be sent to all members of Congress.
>
> On July 13 Selective Service amended a previous bulletin to call attention to the critical need for certain science teachers. At that time it declared, "Secondary schools are particularly hard-pressed to find qualified teachers of mathematics and the physical and biological sciences. Local boards are requested to give particularly careful consideration to the occupational deferment of any registrant who [becomes] . . . a teacher in any of the fields of physical and biological science, mathematics, medicine, or dentistry." Five days later Selective Service announced specifically that the bulletin "has been revised to include medical and dental schools."

Resolution No. 27 on Presumption of Service-Connected Disabilities was sent, also through the Washington Office, to the Administrator of Veterans' Affairs and the chairmen of the committees of the House and Senate having jurisdiction over veterans' affairs. This resolution placed the American Medical Association in a position of opposition to the establishment of "service connection by presumption" for disability developing after military service and, in addition, urged the establishment of service connection for disability on an individual evaluation based on firm medical evidence.

The House of Delegates approved a recommendation submitted by the Board of Trustees that the Section on Physical Medicine and Rehabilitation be renamed the Section on Physical Medicine, and it also adopted a resolution (No. 74) that changed the name of the Section on Dermatology and Syphilology to Section on Dermatology. However, Section 1, Chapter VII of the Bylaws, which lists the names of the sections of the Scientific Assembly, was not amended. The Secretary has informed the Council on Constitution and Bylaws concerning this omission and understands that that Council will present an amendment for approval by the House at this session.

Field Activity

The Secretary and Assistant Secretary during the past year have been even more active than previously in the number of medical meetings to which they have traveled and before which they have spoken. The number of meetings of committees, councils, commissions, etc., which they have had to attend also has increased, so that a great deal of their time is spent in this type of service to the Association. However, they attempt to coordinate their absences from Headquarters so that neither is away at the same time. It is regretted that occasionally this is not possible to accomplish.

Appreciation

The Secretary offers an expression of grateful appreciation to the members of the House of Delegates, the officers and members of official bodies of the Association, officials of state and county medical societies, and many individual members for their consideration and aid. He also wishes to express to his associates of the administrative staff and to other loyal and efficient personnel his sincere appreciation.

Respectfully submitted,

GEORGE F. LULL, Secretary.

REPORT OF THE BOARD OF TRUSTEES

To the Members of the House of Delegates of the American Medical Association:

The following annual report of the Board of Trustees is respectfully submitted.

Report on Matters Referred by House of Delegates

Geriatrics.—In response to the directive of the House of Delegates that a Committee on Geriatrics be appointed to function under the Council on Medical Service, members of the Committee are now being selected by the Council, with the approval of the Board. At the present time no consultants will be named; however, if in the future the Committee deems consultants necessary they will be added. The broad objectives of the Committee will be to outline basic problems of geriatrics to be attacked, and methods for approaching these basic problems.

Resolution No. 23 on Reimbursement for Collecting American Medical Association Dues.—The Board of Trustees carefully considered Resolution No. 23, introduced into the House of Delegates in Atlantic City by Dr. Gerald D. Dorman on behalf of the New York delegation, which would direct the full reimbursement of constituent and component associations and societies annually for their expenses in collecting and transmitting American Medical Association dues for the preceding calendar year.

The Board is cognizant of the difficulties experienced in New York relative to the collection of dues. It does not feel, however, that increased reimbursement of constituent state and component county medical societies is the answer in this regard. Most of the state associations send out one bill for both the national and state dues, thereby eliminating the expense of two mailings. There is, of course, an added burden of bookkeeping, writing checks, and handling correspondence, but it is understood by the Board that the allocation of 1% of the dues collected is ample in most instances to cover these expenses. The recommendation of the Board is, therefore, that no change be made in the policy in effect at the present time.

Resolution No. 49 on Introduction of Committee Reports.—The resolution introduced by Dr. Byron Blaisdell at the Atlantic City meeting of the House of Delegates was carefully considered as to the feasibility of its implementation, i. e., that all committee reports be submitted to the Association sufficiently early to be transmitted to members of the House of Delegates not less than 30 days prior to the meeting at which they are to be introduced and that all reports not so submitted be deferred for introduction until a later meeting of the House unless exception be made by a two-thirds vote of the House.

The Board feels that although the intent of the resolution is sound, it would not be practical to carry out the recommendations contained therein.

Other Resolutions.—All of the other resolutions which were referred to the Board of Trustees by the House have been referred to the appropriate council, committee or department at Headquarters. As soon as reports are received on these matters, they will be transmitted to the House of Delegates.

Distinguished Service Award

The Board of Trustees requests all members of the Association to submit nominations for the recipient of the Distinguished Service Award. It will be appreciated if these nominations are forwarded to the headquarters office by March 1 of each year.

The Journal of the American Medical Association

The activities of THE JOURNAL and of those departments associated with this periodical are, in general, evident with each weekly issue. From time to time innovations are introduced and the more popular or needed sections expanded. The information reported in THE JOURNAL is gathered with the needs and demands of the profession and of the Association and its individual offices in mind. Each year, in fact each season, presents new information on medical problems and as this is gathered it is reported in THE JOURNAL pages. Similarly, as the committees, councils, and bureaus of the Association report on projects in which they are engaged this information becomes available in THE JOURNAL.

The number of scientific articles that are published each year run into the hundreds and the number of other items well into the thousands. Some indication of the extent of activities of the various departments of THE JOURNAL is evident in statistics gathered for Queries and Minor Notes, Medical News, and Medical Literature Abstracts. About 200 inquiries are received each month in the Queries and Minor Notes department of THE JOURNAL. More than 1,000 consultants are on the list used by this department for reference of these questions. During the course of a year, the Medical News department now publishes approximately 3,000 items and about the same number of obituaries. Between three and four hundred pages of THE JOURNAL are used each year for this reporting. The Medical Literature Abstracts department searches more than 1,200 publications for information that it abstracts for THE JOURNAL, and these abstracts make up some 12 to 18 pages in each issue of THE JOURNAL. The abstracts are always prepared with the practitioner in mind.

Specialty Journals

During the period of the past 12 months, changes in the appearance of the specialty journals have been completed. These include a new cover design, an improved format, expanded use of color illustrations, and new editorial features. It has been encouraging to learn that the majority of readers who have reacted through correspondence and personal contact accept the changes enthusiastically. It is the policy to satisfy all subscribers if possible, and efforts will continue to modify, where strong interest is indicated, to meet the tastes of more readers. The cover and page format are flexible enough to permit necessary adjustments.

The specialty journals have been experimenting with new color reproduction processes. Cost of color illustrations has been a block to any extensive use of color. In addition to the regular letter press method, test articles have employed the Polychrome Process, offset, and most recently the Poster-Chrome method. The latter has stirred most interest on the basis of cost and results. Some slight adjustment from standard inks generally used in this process gives promise of true color and quality reproduction. It gives every indication of a wider use of color in the specialty journals.

The detailed reproduction of scientific exhibits and the illustrated articles have been editorial features incorporated into the specialty journals. It is of interest to note that the A. M. A. Archives of Surgery has received the top award of the American Medical Writers' Association for its editorial selection and feature material presentation for the year 1955.

The illustrated article is the basis for "Medicine Illustrated." At present it is being developed to a very high degree of quality for the Archives of Surgery. Intended as a solicited feature, instructions for preparation of an illustrated article are being requested by prospective contributors.

The A. M. A. Archives of Industrial Health will offer its readers, beginning in its October issue, a 16 page section of public health news. This material is being prepared by the United States Public Health Service and will be a regular monthly feature in this journal.

Specialized section papers are being published in the specialty journals in ever-increasing numbers. Important symposiums are also being featured. These new sources of manuscripts, together with the introduction of new features, are providing more than adequate copy for the journals.

During the past 12 months not one issue of the nine specialty journals has been delayed beyond the month it was due. Although there is some consolation in this record, it falls short of the department's desire to publish all journals very early in the publication month, and, even better, late in the month prior to due month. This problem will receive particular attention in the months to come. A workable plan to prepare a standing inventory of articles in type goes into effect immediately.

During the first eight months of 1955 the specialty journals published 944 original articles, 29 progress reports or general reviews, 139 case reports or clinical notes, 9 special articles, 21 scientific exhibits, and 13 editorials, or a total of 1,155 articles. The total of unpublished articles for all specialty journals is 585. It is anticipated that about 600 more papers, including original articles, progress reports, general reviews, case reports, clinical notes, special articles, scientific exhibits and editorials, will be published during the remainder of 1955.

Circulation figures as of Sept. 1, 1955, for all nine specialty journals show a net decrease of 1,130 as compared with the corresponding period in 1954. Specialty journals showing a decrease are as follows: A. M. A. Archives of Internal Medicine, 548; A. M. A. American Journal of Diseases of Children, 195; A. M. A. Archives of Neurology and Psychiatry, 59; A. M. A. Archives of Dermatology, 291; A. M. A. Archives of Otolaryngology, 272; A. M. A. Archives of Ophthalmology, 271; and A. M. A. Archives of Industrial Health, 25. Two specialty journals, A. M. A. Archives of Surgery and A. M. A. Archives of Pathology, had increases in circulation of 513 and 18 respectively. "Take offs" have been greater than "place ons" due to the clearing up of old records. Recent reports have indicated that this trend has been reversed and that for most journals the "place ons," indicating an increase in circulation, are now greater than the "take offs."

SPECIAL PROJECTS

The following titles are under contract with various medical publishers: J. A. M. A. Clinical Abstracts of Diagnosis and Treatment; A. M. A. Scientific Exhibits—1955; J. A. M. A. Queries and Minor Notes.

The trial volume of "J. A. M. A. Clinical Abstracts" has already been published. Originally intended to meet the demand for J. A. M. A. material abroad, it is hoped there will also be a domestic demand. The publication of a second volume depends on the market.

The "A. M. A. Scientific Exhibits—1955" is expected to be published in time for the Boston Clinical Meeting. This volume is a collection of the award winning exhibits shown at the Atlantic City Meeting, plus additional selections to complete a volume of 800 pages. This is intended to be an annual publication.

"J. A. M. A. Queries and Minor Notes" is the future version of "Questions and Answers." It is expected as an early 1956 release.

Agreement has been reached for the publication of a new type of abstract volume utilizing illustrations rather than the conventional descriptive abstract. It will also include a reference feature. The idea will first be developed in the field of surgery. It is anticipated other specialties will lend themselves to similar treatment, thus developing a series of illustrated volumes.

Contracts have been signed for the distribution of back volumes of the Quarterly Cumulative Index Medicus, and for the reprinting of out-of-print volumes. These agreements place the Association in the position of dealing directly only with current volumes.

An effort is being made to bring all American Medical Association publications under a contract especially suited to the circumstances peculiar to Association activity. The Law Department developed the contract. While it is designed to protect the interests of the Association, it has been made purposely flexible to meet also the specific interests of the publisher. When all titles are finally under this contract, there will be uniformity in dealings with all publishers.

Report of Circulation Department

CIRCULATION OF SCIENTIFIC JOURNALS

The circulation of THE JOURNAL of the American Medical Association and the nine specialty journals leveled off during the fiscal year ending June 30, 1955. The average circulation of each publication for the 12 month period ending June 30, 1955, is indicated in the following table:

Average Circulation for Fiscal Year—July 1 Through June 30

	1955
THE JOURNAL	
Membership copies	116,562
Subscriber copies	44,105
Net paid copies	160,667
Advertising, exchange, complimentary, and other free copies	5,378
Total distribution	166,045
Archives of Internal Medicine	
Membership copies	1,991
Subscriber copies	7,100
Net paid copies	9,091
Advertising, exchange, complimentary, and other free copies	848
Total distribution	9,939
American Journal of Diseases of Children	
Membership copies	2,017
Subscriber copies	5,456
Net paid copies	7,473
Advertising, exchange, complimentary, and other free copies	853
Total distribution	8,326
Archives of Neurology and Psychiatry	
Membership copies	981
Subscriber copies	3,501
Net paid copies	4,482
Advertising, exchange, complimentary, and other free copies	724
Total distribution	5,206
Archives of Dermatology	
Membership copies	684
Subscriber copies	4,101
Net paid copies	4,785
Advertising, exchange, complimentary, and other free copies	726
Total distribution	5,511
Archives of Pathology	
Membership copies	481
Subscriber copies	3,144
Net paid copies	3,625
Advertising, exchange, complimentary, and other free copies	629
Total distribution	4,254
Archives of Otolaryngology	
Membership copies	1,382
Subscriber copies	4,168
Net paid copies	5,550
Advertising, exchange, complimentary, and other free copies	702
Total distribution	6,252
Archives of Surgery	
Membership copies	3,167
Subscriber copies	3,463
Net paid copies	6,630
Advertising, exchange, complimentary, and other free copies	702
Total distribution	7,332
Archives of Ophthalmology	
Membership copies	2,441
Subscriber copies	4,493
Net paid copies	6,934
Advertising, exchange, complimentary, and other free copies	778
Total distribution	7,712
Archives of Industrial Health	
Membership copies	126
Subscriber copies	2,654
Net paid copies	2,780
Advertising, exchange, complimentary, and other free copies	555
Total distribution	3,335

Subscribers who are not receiving a publication as a benefit of paid membership are required to pay for their subscription in advance.

Expiration notices are sent out two months in advance of the date of expiration, and all accounts are terminated at expiration, unless the renewal order with payment has been received. This policy has stabilized the circulation of the publications and has simplified and improved the clerical operations involved. It is now possible to conduct a promotion campaign to gain new subscribers for THE JOURNAL as well as for the specialty journals. Several test mailings have already been made and an intensified promotion campaign directed to non-dues-paying members and nonmembers of the American Medical Association and Canadian and foreign physicians will be conducted this fall. Also, special promotion mailings will be directed to graduating medical students and physicians entering active practice next spring.

REGISTRATION AT MEETINGS

The Director of the Department is responsible for the proper registration and admittance of all member physicians and their guests at both the annual and the clinical meetings of the Association.

The registration at the Miami Clinical Meeting and the Atlantic City Annual Meeting is shown in detail below. Economies in the operation of the Registration Bureau have been effected during the past fiscal year. The total cost of registration at the Miami Meeting was $3,644.00, which was a saving of $9,182.00 over the cost of the previous year's Clinical Meeting in St. Louis. The cost of registration at the Altantic City Meeting was $6,793.00, which was a saving of $4,853.00 over the cost of the previous year's Annual Meeting in San Francisco.

Registration, Miami, Nov. 29–Dec. 2, 1954

Physicians	3,253
Residents	136
Interns	43
Students	176
Nurses	306
Technicians	130
Physicians' guests	2,883
Total	6,927
Exhibitors	574
Exhibitors' guests	206
Grand total	7,707

Registration, Atlantic City, June 6-10, 1955

Physicians	11,518
Residents	875
Interns	518
Students	403
Nurses	470
Technicians	248
Physicians' guests	13,368
Total	27,458
Exhibitors	2,504
Exhibitors' guests	1,095
Grand total	31,057

Library

Since the last report of library activities covered the calendar year 1954 and the next, according to a recent action of the Board of Trustees, is to deal with the period from July, 1955, through June, 1956, this review refers only to the first six months of this year.

During this time there occurred a lapse of three months between the resignation of the reference librarian and the arrival of her successor, which handicapped the work in this department. However, a total of almost 1,300 requests was recorded, 965 of them requiring the preparation of package libraries, and a number of others involving the compilation of bibliographies or search of the literature for special information. This total does not include numerous minor inquiries and telephone calls that are received each day.

Of the package libraries mailed to borrowers, 577 were returned promptly, an extension of time was requested for 48, a post card reminder was required for 288 and follow-up letters for 50, but only 2 have not been returned.

Altogether 5,747 individual issues of periodicals were loaned, 2,313 included in package libraries, and 953 borrowed for use by other departments in the headquarters building.

A complete survey of the book collection has been undertaken with the purpose of withdrawing any items that are outdated or little used. The general policy is to eliminate books more than 10 years old unless they are of particular value for the needs of this library or are standard works basic for any collection. At the same time the shelf list and the catalog cards are being checked and revised.

In preparing the index to the first volume of THE JOURNAL, special attention was given to cutting superfluous cross references and duplicate entries and to curtailing of certain sections, with a consequent 25% reduction in the number of pages required for the index.

Quarterly Cumulative Index Medicus

Although no completed volume of the Index appeared during the first six months of this year, the editing of copy for volume 53 (January-June, 1953) was finished in April and the page proof in June. In the meantime editing of the next volume began. The material for volume 55 (January-June, 1954) is all indexed, and it has been possible to continue processing English language journals as soon as they are received.

A plan has been formulated for speeding production of the Index by publishing three volumes in 1956 and the same number in 1957. This will finally bring the Index up to date by 1958. In order to implement the project it has been decided to confine the list of periodicals indexed, at least for the present, to English language journals and those published in the Western European and Latin American countries, with the inclusion of certain titles from the Soviet Union. A few new journals of special interest have been added, but unfortunately many others must by necessity be bypassed.

Standard Nomenclature of Diseases and Operations

Work on the *fifth edition* of *Standard Nomenclature of* Diseases and Operations has progressed rapidly in the past 10 months. The 23 committees appointed by the Editorial Advisory Board on March 7, 1953, work in close collaboration with the editors. Preliminary reports have been submitted by the Ophthalmology, Anesthesia, Dermatology, and Neurology Committees.

The supplement carrying the changes, deletions, and additions, printed in THE JOURNAL, Aug. 14, 1954, has proved very beneficial. The Nomenclature is now being used in 84.8% of the hospitals of the United States and has considerable foreign distribution. In addition, there is a definite trend toward installation of the Nomenclature in a number of doctors' offices and clinics. Approximately 2,520 queries have cleared through the headquarters office since October, 1954. Approximately 33,000 copies of the fourth edition of the Standard Nomenclature of Diseases and Operation were sold up to January, 1955.

An educational exhibit on standard nomenclature explaining the organizational setup was displayed at the American Association of Medical Record Librarians meeting in Detroit in October, 1954, and at the American Medical Association annual meeting in Atlantic City in June, 1955. The exhibit will also be displayed at the American Hospital Association meeting in Atlantic City in September, 1955, and at the American Association of Medical Record Librarians meeting in Chicago in October, 1955.

STANDARD NOMENCLATURE INSTITUTES

In September, 1954, a three day standard nomenclature institute for medical record librarians was taught in Evansville, Ind. In November, 1954, a lecture on standard nomenclature was given before the American Association of Medical Clinics in New Orleans, and the nomenclature was taught at a five day institute for medical record librarians in Los Angeles, the latter institute being sponsored jointly by the American Hospital Association and the American Association of Medical Record Librarians.

The American Medical Association sponsored and conducted three day standard nomenclature institutes in February and May, 1955. The Association-sponsored institutes were tuition-free, and the lectures were designed to accommodate beginners, intermediates, and advanced students. Registration was not restricted to medical record librarians. Office secretaries, medical secretaries, clinic clerks, nurses, statisticians, and medical record librarians registered. Applications for the February institute exceeded 400. One hundred fifty of this group were accepted in February and 100 in May. Due to the fact that it has been necessary to limit registration at these institutes and in order to accommodate prospective students, another standard nomenclature institute will be given in October, 1955, at Association headquarters. Regional standard nomenclature institutes are now under consideration. The nomenclature institute teaching is under the direction of the Associate Editor, Adaline C. Hayden. The anatomy lectures, based on the topographic section of the standard nomenclature, are taught by Dr. Edward T. Thompson, Washington, D. C. Through the above mentioned mediums, approximately 600 students have received instructions in the use of the nomenclature. The Editorial Advisory Board for the fifth edition appointed by the Board of Trustees is composed of Drs. George Baehr, *Chairman, New York;* Edwin L. Crosby and Austin Smith, Chicago; Selwyn D. Collins and Edward T. Thompson, Washington, D. C.; Richard J. Plunkett, Editor, Chicago; and Adaline C. Hayden, C.R.L., Associate Editor, Chicago.

Today's Health

During the period covered by this report, July 1, 1954, to June 30, 1955, a number of rather drastic changes were made within the operational framework of *Today's Health.* These changes were designed to put the magazine on a firm financial basis and, at the same time, improve *Today's Health* from the standpoint of appearance, content, and salability.

Early in the fall of 1954, the Board of Trustees of the American Medical Association created the position and approved the appointment of a Managing Publisher. This became an accomplished fact at the Miami Clinical Meeting the first week of December, 1954. The assignment given the Managing Publisher was to make *Today's Health* a profitable operation and erase the deficit under which the magazine has been operating in recent years. To accomplish this, sound budget control procedures have been developed and close coordination has been established between departments.

EDITORIAL DEPARTMENT

By action of the Board of Trustees at the 1954 Clinical Meeting, Dr. W. W. Bauer was made Chief Editor of *Today's Health,* and a five man Editorial Advisory Board was appointed. Members of this Board are Drs. Julian P. Price, Walter E. Vest, George F. Lull, and Austin Smith, and Mr. Leo Brown. Dr. W. W. Bauer is Chairman.

Following approval of the 1955 *Today's Health* Editorial Department budget, two things were immediately done. A firm of outside consultants, the Eastman Research Organization, was retained, after a lapse of five years, and a seasoned article editor was hired. The Eastman group made its first study on the January, 1955, issue and, in part, reported: "We find no evidence that the magazine has slipped and some indication that it has improved. There is considerable praise. There are some things susceptible to improvement, as of course there always will be, and we point these out." Furthermore, the study indicated that *Today's Health* is attracting more readers under the age of forty, that home subscribers are passing along copies to more acquaintances than ever before, that many more subscriptions are being renewed, and that *Today's Health* is read better than are many topnotch business publications. Continuing study of the magazine, with periodic reader surveys, is of immense practical help to those planning and shaping its editorial content. Except to them, the Eastman recommendations may seem to deal largely with minutiae, but reader reaction has demonstrated that it is of a myriad of small improvements that progress is made.

Great impetus has been given to these improvements by the employment of a seasoned article editor. This is gradually enabling the Editorial Department to work further and further ahead of deadlines, reducing the chance of error, and to give the business departments an earlier and better idea of what is going to appear in future issues—for both advertising and circulation promotion—and probably will soon make a minor but definite cut possible in printing costs.

Long-range planning has been made more effective and its results more readily available for the Advertising and Circulation Departments. This has been practiced in some degree for eight years, but its present development could hardly have been reached without the improvement in editorial procedure and by the employment of an article editor. With one major gap, there is now, for the first time in the history of the magazine, a basic framework for an efficient editorial operation. The gap is the lack of a Production Department, but the development of that department has been approved by the Board of Trustees and it will be in operation by the first of 1956.

One editor has said that *Today's Health* is "the most quoted magazine in the world." Its articles are regularly reprinted or "digested" by publications in the United States, England, and more remote parts of the world and by the information services of the U. S. Department of State. A striking sign of progress is a decision of the Dell Publishing Company to publish a collection of *Today's Health* articles in book form. These books will be given national distribution.

CIRCULATION

The circulation of *Today's Health* made decided gains in the last half of 1954, due to Operation MD-DDS of the medical society auxiliaries. These gains continued and the average net paid circulation for the first six months of 1955 was 361,598, thus maintaining the highest circulation figure ever established for the magazine. The renewal percentage on subscriptions reflects a wider acceptance of the magazine and a healthy growth of interest by the laity. Also, the *Today's Health* renewal percentage compares favorably with national consumer magazines such as *Look, Life, Colliers,* and *Newsweek,* which are happy to approach a renewal percentage of 50%.

The number of copies of *Today's Health* going into the offices of physicians and dentists has risen from 15.4% in May, 1954, to 26.7% in May, 1955, and is the result of the Woman's Auxiliary Subscription Project. Six to eight month trial subscriptions were placed in many reception rooms, and the *Today's Health* committees of the local medical society auxiliaries contacted each physician and dentist for a long-term renewal. Where this did not result in a renewal subscription, two direct-mail efforts were sent from the *Today's Health* office to follow up the expirations. The wide distribution of the magazine in reception rooms will help to increase the percentage of returns on fall and winter direct-mail promotion efforts to the laity. It is planned to mail sufficient promotion efforts to the laity during the next fiscal year to bring the paid circulation up to approximately 450,000 by June 30, 1956. This sizeable circulation increase will be of great advantage to the Advertising Department in securing new advertising accounts.

In addition to the 23,910 schools and teachers who regularly subscribe to the magazine, 73 high schools and colleges used *Today's Health* in the classroom under the magazine's Group Study Plan during the 1954-1955 school year. An average of 2,885 copies per month were used in these schools, which were supplied with a monthly list of discussion topic questions and answers based on each issue. A total of 28,846 copies were used by the students during the last school year, and, as each copy is normally used by more than one class, the magazine actually reaches a very large audience of students.

Today's Health has been displayed at eight national conventions this year, and sample copies, promotion circulars, and subscription forms have been distributed to professional and educational leaders. The Woman's Auxiliary has set a goal of 63,000 new and renewal subscriptions for its current project ending May 31, 1956, and there is every reason to believe that this quota will be reached. Special promotion material, order forms, and project prizes will be used to stimulate the local auxiliaries' activity.

Promotion efforts are being continued to increase the use of *Today's Health* by industrial and business firms. Group subscriptions ranging from 10 copies to 1,200 copies have been received during the past year, and it is expected that the wider recognition of the health education value of the magazine by industrial physicians and industrial and business leaders will stimulate this project. Also, the nation's leading railroads, airlines, and steamship lines are beginning to place the magazine in lounges of their passenger carriers, and this will bring *Today's Health* to the attention of a greater number of business, professional, and industrial leaders than ever before.

ADVERTISING

During the period covered by this report, gross advertising income was $231,667.57, an average of $19,305.63 per issue. Fifty-one new advertising accounts were established during this 12 month period, and, as of June 30, 1955, there were 176 active accounts using *Today's Health* as an advertising medium.

Direct-mail advertising promotion efforts were continued on a consistent basis during the latter part of 1954 and the early part of 1955. Tradepaper advertising was discontinued in January, 1955, in an effort to conserve promotion dollars.

MECHANICAL PRODUCTION

There are no significant production facts to report concerning the last six months of 1954, but a number of things occurred between Jan. 1 and June 30, 1955. Perhaps the most drastic move was the decision to reduce the size of the magazine from 72 pages plus cover to 64 pages plus cover. The elimination of eight pages accomplished two things: It immediately brought the editorial-advertising ratio into better balance and at the same time reduced manufacturing costs by an estimated $53,000. Fortunately, this move has not affected the variety of fare offered from an editorial standpoint. If anything, it has sharpened quality in that now only the best material can win the competition for the limited space.

All editorial color appearing in *Today's Health* is derived from special inks worked out exclusively for *Today's Health* by its Art Director and McCall Corporation ink experts. This is a practice followed by a number of other national magazines, and it has already helped improve the eye-appeal of the magazine.

During the last six months of 1954 a total of 1,980,601 copies were printed. For the first six months of 1955, it had been planned to print 2,100,000 copies for a budgeted manufacturing cost of $225,757. The actual expenses for the first six months of 1955 totaled $225,132 and 2,254,650 copies were manufactured.

Through the Magazine Publisher's Association, *Today's Health* will soon be in position to secure comparative manufacturing cost figures from other leading magazine publishers, and there is every reason to believe that by closely watching all phases of the manufacturing operation over-all costs can be further reduced. The development of the *Today's Health* Production Department and the employment of a Production Coordinator will be of considerable help in this regard.

While *Today's Health* will not be "in the black" at the end of 1955 definite progress is being made. A basically sound organization has been established, and with the continued fine cooperation from staff members it is felt that *Today's Health* will continue to make a real contribution to the American Medical Association and to the general public.

Report of Directory-Biographical Department

STATUS AS UNIT OF DEPARTMENT OF RECORDS AND CIRCULATION

For the three years prior to Jan. 1, 1955, the Directory-Biographical Department, together with the Membership-Circulation Department, functioned as the Department of Records and Circulation. These units had been integrated in January, 1952, under a single director in order to streamline overlapping clerical routines and to make more efficient use of established techniques and facilities during the transition period immediately following the sweeping changes made in the membership, structure of the Association. By the autumn of 1954 the membership records had been brought up to a current basis, making it feasible to begin compilation of a new edition of the American Medical Directory. An edition of the Directory had been tentatively scheduled for publication in 1952, but plans for it had to be postponed because it was not possible at that time to obtain an accurate list of members of the Association.

From January, 1952, to January, 1955, personnel from both units of the Department centered all efforts on the establishment of an accurate membership record. An attractive new membership card, incorporating the official emblem of the Association, was designed and adapted for each of the five types of membership—Active, Service, Associate, Affiliate, and Honorary. Tangible evidence of the results accomplished can be seen in the following comparison of the numbers of members in the various categories at the end of 1952, 1953, and 1954 respectively. The figures for 1952 are approximate and incomplete.

	1952	1953	1954
Active members (including active members excused from payment of dues)	126,000	133,811	138,511
Associate members	5,000	4,534	4,778
Service members	9,000	8,078	9,362
Affiliate members	?	270	268
Honorary members	?	?	95
Total membership at end of year..	140,000	146,723	153,014

Status in 1955

With an accurate record of membership available for 1954, the Department of Records and Circulation was dissolved as of Jan. 1, 1955, and the Directory-Biographical Department again established as a separate unit. The Department, however, has continued to maintain, so that the information can be published in the Directory, a record of those physicians who hold membership in their constituent association but do not hold membership in the American Medical Association. A special symbol will appear in the biographical data of these physicians, estimated to number about 17,000 in the United States and its dependencies.

After the 18th edition of the American Medical Directory had been published in 1950, the type was left standing. Two revisions had been made, one late in 1951 and the other during the early part of 1952, before it became apparent that it would not be feasible to issue a new edition in 1952. Beginning in September, 1954, however, after the physicians' 1954 membership status had been posted on the Directory records, the actual work of compiling the new, 19th edition began with the mailing of information cards to all physicians. During the period from Sept. 8 through Nov. 26, a card was sent to each physician in the United States and its dependencies and Canada and to American physicians in foreign countries. The card, prepared in cooperation with the Bureau of Medical Economic Research, requested information on office and residence addresses, specialty, and type of practice for publication in the Directory and also requested information—not for publication—on the source of income and the physician's major type of practice. A disappointingly small proportion of information cards was returned. Out of 246,236 mailed, only 74,515 had been returned by the end of January, 1955. During February and March, therefore, a second request for information was mailed to 132,625 physicians who had not returned the first card and who had not been recently reported as serving a hospital appointment. Because a large number of addresses still had not been verified by June, efforts had to be made to check current telephone directories, rosters of the constituent associations, and state registers of licensed physicians. If the address could not be verified in this manner or if a possible change of address seemed to be indicated, a third letter was sent to the physician. The Directory Information card was not enclosed with the letter, as it was felt that possibly physicians had not returned the first two cards sent to them because they did not wish to supply the information requested on the source of income, which data had been intended for the statistical use of the Bureau of Medical Economic Research. The third letter, asking simply for the physician's current address and specialty or type of practice, has been sent during July and August, 1955, to more than 13,000 physicians. Proof cards have also been sent to hospitals and sanatoriums to verify their listings in the new edition.

As of Sept. 1, 1955, most sections of the Directory were about to go through a final revision. If the work proceeds on a normal schedule, binding of the book could begin at about the end of the year, with first copies of the new Directory available shortly thereafter.

The 19th edition will contain substantially the same type of information as given in the 18th edition, which was published in 1950. One change in content is the dropping of the lists of members of special societies, which deletion will save about 150 pages, allowing enough space to accommodate the listings of an increased number of physicians in the 1955 edition. The individual biographical listings of physicians will, however, continue to indicate membership in the various national medical organizations. To June 30, 1955, biographical data have been added to the Directory records on more than 45,800 new physicians, and approximately 22,000 names have been deleted from the records because of death or other reasons, for a net increase of more than 23,500 physicians. During the same period, more than 222,000 changes of address have been recorded.

The supply of copies of the 1950 edition of the Directory had been exhausted several years ago; therefore, the major source of income for the Directory-Biographical Department during the current period has been the Directory Report Service, a supplementary service furnished to those desiring it on a subscription and service-fee basis. Also, some advance payments have been received for the new edition of the Directory. About 17,000 copies of the Directory will be printed; more than 13,000 subscribers have already placed prepublication orders for the book, which has a list price of $30.00 a copy after publication.

Even though work has not been completed on the 19th edition, plans are being formulated for compilation and production of the 20th edition. With the next Directory tentatively scheduled for publication early in 1958, extensive investigations are currently being made by the Acting Director of the Department to determine the feasibility of producing the book by methods other than linotype composition.

While the efforts of personnel have been concentrated on the task of compiling the Directory, the Department has continued to act as a clearing house of information on physicians for most of the councils, bureaus, and departments of the Association, as well as for other official bodies, government agencies, the medical profession, and the general public. From July 1, 1954, through June 30, 1955, the Department has received an average of 125 telephone calls a day and more than 5,500 mail inquiries concerning physicians during the 12 month period. It is estimated that, during the past year, 12,000 membership applications have been checked for the Secretary's Office, 5,800 license applications have been processed for the Council on Medical Education and Hospitals, and 3,500 applications have been verified for five of the examining boards in a medical specialty. The Department also furnishes the basic information for the I. B. M. card files of physicians maintained for statistical purposes by the Bureau of Medical Economic Research. Personnel of the Membership-Circulation Department refer to the records of the Directory-Biographical Department to identify the remitters of membership dues, to ascertain current addresses, and to verify eligibility to exemption from payment of dues on the basis of postgraduate training, temporary military service, retirement, or attainment of age 70. The Department routinely checks for various headquarters units information on authors, participants in meetings and conferences, prospective advertisers, and other correspondents. Because of the limited personnel available, it has not been possible for the Department to perform some of the services requested by alumni associations, medical societies, and allied organizations during the compilation period of the Directory.

Report of State Journal Advertising Bureau

The State Journal Advertising Bureau, operating under the auspices of the Board of Trustees, functions in behalf of 33 state medical journals, official publications of 37 state medical societies. Organized in 1913, the Bureau secures advertising space sales, handles production details, billing, and collection for the convenience of the journal offices. Helpful suggestions on advertising makeup and comments on economic trends are forwarded to the publications from time to time.

Net sales for the period from July 1, 1954, to June 30, 1955, amount to $736,702.41 as compared with $658,515.16 for the same period of the preceding year and show a gain of 11.87%. A total of 12,423 pages was sold for the 33 journals from July 1, 1954, through June 30, 1955, with an increase of 993 pages over the preceding year's figure of 11,430, a gain of 8.7%.

Because the Bureau functions solely for the benefit of the state medical journals, all money is forwarded to the member publications, after deduction of operating costs of the Bureau. Complete figures are not available at the present date, but charges for 1955 will no doubt approximate last year's of 7.7% of the net sales—a marked difference to the 15% or 25% commission usually charged for selling advertising space without the additional service outlined above.

The Bureau's operative principles provide for a governing board, known as the Advisory Committee, composed of five editors or business managers of state journals who are also members of the American Medical Association. Dr. L. Fernald Foster, Michigan, is chairman of the present committee. The other members are Drs. C. Grenes Cole, Louisiana; Douglas W. Macomber, Colorado; R. G. Mayer, South Dakota; and Wingate M. Johnson, North Carolina. Mr. Alfred J. Jackson, Director of the Bureau, serves as secretary of the Advisory Committee. Ex officio members are Dr. George F. Lull, Secretary and General Manager of the American Medical Association, and Dr. Robert T. Stormont, Chairman of the Advertising Committee and Secretary of the Council on Pharmacy and Chemistry of the Association.

The following 33 official state publications are members of the State Journal Advertising Bureau at the present time:

Journal of the Medical Association of the State of Alabama
Arizona Medicine
Journal of the Arkansas Medical Society
Connecticut State Medical Journal
Delaware State Medical Journal
Medical Annals of the District of Columbia
Journal of the Florida Medical Association
Journal of the Medical Association of Georgia
Hawaii Medical Journal
Journal of the Indiana State Medical Association
Journal of the Iowa State Medical Society
Journal of the Kansas Medical Society
Journal of the Kentucky State Medical Association
Journal of the Louisiana State Medical Society
Journal of the Maine Medical Association
Maryland State Medical Journal
Journal of the Michigan State Medical Society
Minnesota Medicine
Missouri Medicine
Nebraska State Medical Journal
Journal of the Medical Society of New Jersey
North Carolina Medical Journal
Ohio State Medical Journal
Journal of the Oklahoma State Medical Association
Pennsylvania Medical Journal
Rocky Mountain Medical Journal (Colorado, Montana, New Mexico, Utah, and Wyoming)
Journal of the South Carolina Medical Association
South Dakota Journal of Medicine
Journal of the Tennessee State Medical Association
Texas State Journal of Medicine
Virginia Medical Monthly
West Virginia Medical Journal
Wisconsin Medical Journal

Report of Department of Public Relations

The period covered by this report is Oct. 1, 1954, to June 30, 1955. During this nine month period the American Medical Association's public relations program continued to stress positive, constructive activities designed to increase both public and professional understanding of medicine's problems, policies, and goals. Particular emphasis was placed on means of assisting state and county medical societies in the development of effective public relations programs, helping physicians and medical assistants in the improvement of physician-patient relationships, and promoting closer relations between the American Medical Association and its physician members. Special efforts also were made to explain the Association's point of view on reinsurance, veterans' medical care, and other national legislative issues.

Advisory Committee

The Advisory Committee to the Director of Public Relations met three times during the period of this report, offering valuable suggestions on all phases of medical public relations. Present members of the advisory committee are:

Mr. Theodore Wiprud, Chairman
Executive Director and Secretary, Medical Society of the District of Columbia
Mr. James T. Barnes
Executive Secretary, Medical Society of the State of North Carolina
Mr. Merrill C. Smith
Executive Secretary, Nebraska State Medical Association
Mr. Rowland B. Kennedy
Executive Secretary, Mississippi State Medical Association
Mr. James A. Waggener
Executive Secretary, Indiana State Medical Association
Mr. Ralph W. Neill
Executive Secretary, Washington State Medical Association
Mr. Robert D. Potter
Executive Secretary, Medical Society of the County of New York
Dr. John E. Farrell (Sc.D.)
Executive Secretary, Rhode Island Medical Society
Mr. Ralph R. Marshall
Executive Secretary, New Mexico Medical Society

Among the many subjects discussed by or reported to the advisory committee, the following subjects are considered worthy of note.

Public Opinion Survey.—A survey to determine the attitudes of physicians and the general public toward the medical profession and the Association will be conducted by Ben Gaffin and associates in the latter part of 1955. Results of the study, which was being pretested in June, will be revealed at the 1955 Public Relations Conference to be held just prior to the Clinical Meeting in Boston.

Public Relations Conference.—The advisory committee opposed discontinuance of the annual Public Relations Conference but suggested that those attending the 1955 meeting be asked to rate it in terms of program interest and to suggest pertinent topics of discussion for the 1956 program.

Legislation.—A special subcommittee appointed in November, 1954, reported its belief that there is a need for an improved system of reporting the Association's legislative policies to state and county medical societies, and it urged synchronization of all legislative activity with approved public relations practices.

Health Information Foundation Study.—The advisory committee heard a report on the Health Information Foundation's 1955 public opinion survey on medical services and made suggestions on areas for possible inclusion in the study. The department director reported that the American Medical Association and H. I. F. will cooperate closely in releasing the survey results to both the public and the medical profession.

Future Projects.—Reports were made to the advisory committee concerning preliminary planning for the medical profession's cooperation in Farm-City Week, Medical Education Week, high school science fairs, a survey on the qualifications and training of medical assistants, and distribution of a fund-raising film produced by the National Fund for Medical Education.

Press Relations

With the nation's press and public continuing to show an increased interest in all phases of medical news and with the Association itself continually expanding its activities, the department's press relations work likewise increased in volume and scope during this nine month period. In addition to providing a steady flow of scientific information through the weekly news releases, the press section engaged in numerous special activities to publicize the annual and clinical meetings, special conferences and programs sponsored by the Association, and organized medicine's policies on national legislation and other medical issues of public concern.

Annual Meeting.—Press room registration at the Atlantic City meeting exceeded the 1954 San Francisco meeting by 157 to 134 and was second only to the record high of 185 at the 1953 New York meeting. Of the Atlantic City registrants, 81 were newspaper, wire service, or national magazine writers, compared with 66 at San Francisco. The advance packet of 42 news releases was mailed to 86 state and county executive secretaries or press relations men and to 296 science writers, newspapers, and magazines. During the meeting additional releases were written on the Distinguished Service Award, election of officers, and actions of the House of Delegates. The Director of Press Relations made available all resolutions and reports and interpreted House actions to the news writers.

Press conferences for the newsmen were arranged with American Cancer Society officials and others on the smoking-lung cancer question; with Drs. Scheele, Francis, Sabin, and others on poliomyelitis; and with Dr. Salk individually. The Salk conference attracted from 60 to 75 writers, who had been supplied with advance copies of the important Salk text as a result of last-minute efforts by the department and Dr. Salk.

Spot checks of New York and Philadelphia newspapers showed that all of them carried at least one to three stories daily during the meeting, as did Chicago papers. *Time, Newsweek, Ladies' Home Journal, Better Homes and Gardens,* and several other national magazines carried lengthy reports on the meeting, most of them written mainly from releases prepared by this department. After the meeting, roundup stories appeared in several magazines, and many requests for additional material were filled. Special materials were provided for a medical supplement in the *Atlantic City Press,* for several professional magazines, and for the "March of Medicine" telecast.

Clinical Meeting.—The Miami Clinical Meeting was given the same kind of press coverage as the annual meeting but on a smaller scale. Press room registration totaled 31. Advance press packets, containing 22 news releases, were mailed to 81 state and county executive secretaries and to 110 science writers, newspapers, and magazines. Additional releases were written during the meeting on the General Practitioner of the Year award, actions of the House of Delegates, and the Board of Trustees' appointment of the American Medical Association-American Legion Liaison Committee and the Commission to Study Medical Care Plans. Press conferences were set up for the General Practitioner of the Year and for Health, Education, and Welfare Secretary Hobby and Mr. Edwin J. Faulkner, who spoke on the reinsurance issue.

Special Conferences.—The department provided both advance and press room news coverage for the annual conferences that the American Medical Association sponsors on medical education and licensure, industrial health, and rural health. In addition to materials for newspapers and wire services, special mailings and follow-up stories were aimed at publications with a particular interest in the subject matter of each conference. An example of such special handling was the National Conference on Rural Health held in Milwaukee. Advance packets of 10 news releases were mailed to 42 science writers, 183 farm publications, 211 newspaper farm editors, and all Wisconsin papers. During the meeting additional releases and the texts of prepared addresses were made available in the press room. A nine-page, postmeeting summary was sent to members of the Council on Rural Health, its advisory committee, 500 state and county journals and executive secretaries, and 130 farm publications. A roundup story and photo layout were supplied for THE JOURNAL.

Special Releases.—Special news releases were sent to the press concerning the Eisenhower health plan, the report of the Commission on Chronic Illness, the Hoover Commission report, the Salk poliomyelitis vaccine, and other national issues. Special stories also were prepared for newspapers, state and county journals, and THE JOURNAL to help publicize the "Videclinic" and "March of Medicine" television programs.

Weekly News Release.—The weekly news release, averaging from three to five stories based on newsworthy articles or editorials in THE JOURNAL, was sent to approximately 2,000 publications every week except the two weeks of the annual and clinical meetings.

Editorial Survey.—An analysis of 252 newspaper editorials received during the first quarter of 1955 revealed the following results: 127 favorable to American Medical Association policies or the medical profession generally; 45 unfavorable; and 22 neutral or informative. In addition, there were 19 favorable editorials on the chronic illness report and 8 on the American Medical Association survey of men and women patients in hospitals, all written from material sent out by the department. Thirty-one other editorials on general medical subjects dealt mainly with state and local situations.

MAGAZINE RELATIONS

Liaison.—Magazine editors and writers made a total of 162 requests for services ranging from manuscript review to leads for source material. The Assistant Director made special trips to New York City and Washington, D. C., to renew acquaintances in the magazine field and establish new contacts among publications of national circulation. As a result of a personal letter sent to magazine editors and free lance writers, inviting them to cover the 1955 Annual Meeting, 40 magazine representatives registered at the Atlantic City press room.

Magazine-Television Report.—In January, 1955, the department initiated a weekly column in THE JOURNAL summarizing medical articles appearing in mass-circulation magazines and listing forthcoming network television programs of interest to physicians. During the first six months of 1955, the column reported on 202 magazine articles and 60 television programs. Magazines and TV networks have been extremely cooperative in providing advance information for this project.

TELEVISION AND FILMS

Television News.—As a new service to state and county societies with television stations in their areas, the department early in 1955 began distribution of a monthly newsletter that lists network programs in advance, announces aids available to societies producing local programs, and reports news of special interest to societies working with television. A survey conducted in March and announced in April showed that 41 medical societies produce local television shows ranging from regular weekly programs to one-time presentations.

Videclinics.—The department engaged in extensive promotional activities to help build a medical audience for two closed circuit, 90-minute telecasts sponsored by the American Medical Association, local medical societies, and Smith, Kline & French Laboratories. The first Videclinic, held on Feb. 9 and devoted to the subject of coronary artery disease, was beamed to 32 cities. The second, on mental health, was presented on May 9 in 35 cities with the additional sponsorship of the American Psychiatric Association. A total of approximately 40,000 practicing physicians, residents, interns, senior medical students, and others saw the two programs. The department's work, in cooperation with Smith, Kline & French Laboratories, including letters, posters, invitations, announcements, tickets, and postcard reminders, was aimed at medical societies, medical schools, hospitals, and individual physicians and students in the areas of the telecasts.

General Activities.—The department continued to cooperate with the producers, writers, and news directors of various network television shows by providing sources of information and suggesting qualified participants. The department also continued its active efforts to promote both medical and public audiences for the March of Medicine television series and other network shows.

Film Distribution.—A promotional packet was distributed in February to acquaint medical societies with 16 mm. films available from the American Medical Association for showing to schools, clubs, churches, and other lay groups. Motion pictures included in the packet listing were: "A Citizen Participates," "Night Call," "A Life to Save," "Operation Herbert," and "Your Doctor." The last three films on this list also have been made available for showing on television. During the period of this report, an estimated 1,150,000 TV viewers saw "Your Doctor," 6,400,000 saw "Operation Herbert," and 7,200,000 saw "A Life to Save."

LITERATURE DISTRIBUTION

The department distributed a total of 1,259,411 pamphlets, leaflets, manuals, reprints, and other types of literature during the period of this report. Major new pieces written or distributed were: "County Medical Public Relations Manual," which was introduced to the profession at the Miami Public Relations Conference; "What's Up with Our Medical Schools?" which had its introductory mailing in the second quarter of 1955; and "To All My Patients," a leaflet scheduled for direct distribution to individual physicians in the fall of 1955.

SERVICES TO STATE AND COUNTY SOCIETIES

A. M. A. News Notes.—Covering timely items about Association activities and services of benefit to medical societies, nine monthly issues of News Notes were sent to 362 state and county editors, executive secretaries, American Medical Association department heads and guides, and others.

PR Doctor.—Four bimonthly issues of the *PR Doctor* were distributed in the nine month period to give state and county societies news about medical public relations programs in the field and exchange materials demonstrating the actual techniques and materials used. Among the featured subjects were "heartbreak" cases, health fairs, interprofessional relations, telephone directory listings of physicians, a county experiment in health insurance, a state television project and the "County PR Manual." The PR Doctor mailing list now totals approximately 3,700 medical society personnel.

House of Delegates Report.—A roundup story summarizing actions of the House of Delegates and convention highlights was mailed on the final day of both the annual and clinical meetings to delegates, state and county medical editors, and medical society officers and personnel. The mailing list increased from about 650 at the Miami Clinical Meeting to more than 700 at the Atlantic City Annual Meeting.

This Is Your A. M. A.—A revised set of lantern slides with an accompanying speech outline, describing Association activities and services, was distributed to 38 states and Puerto Rico. Eight extra sets have been made available on a loan basis to medical societies, individual physicians, and Association staff members.

Community Health Week.—State societies and approximately 300 county societies were supplied with suggestions and information enabling them to participate in Community Health Week, sponsored by the United States Junior Chamber of Commerce in cooperation with the National Health Council.

Reinsurance Packets.—More than 400 packets of informational material on the reinsurance issue were made up and distributed to 282 county societies, 25 state societies, and 10 members of the American Medical Association Committee on Legislation. The balance of over 80 packets was kept available to fill requests for future use. The purpose of the packets was to enable state and county societies to enlist the support of local newspaper editors, chambers of commerce, and insurance executives.

SERVICES TO COUNCILS, BUREAUS, AND COMMITTEES

Special Conferences.—The department, in addition to the news coverage already described in the Press Relations section of this report, provided stories for THE JOURNAL summarizing the annual conferences on Medical Education and Licensure, Industrial Health, Rural Health, and Medical Care in the Bituminous Coal Mine Area. A JOURNAL editorial on the latter meeting, also written by this department, was reprinted in the *United Mine Workers Journal.* The department also arranged radio and television coverage of the first three of these special conferences. For the Milwaukee Rural Health Conference, as an example, the National Farm and Home Hour originated a 7-minute feature from the meeting; WGN, Chicago, taped one half-hour and 13 5-minute shows; WLS, Chicago, did a live program featuring participants en route to the conference; and Milwaukee stations put on four radio programs and two television shows during the meeting.

Rural Health Digest.—In cooperation with the Council on Rural Health, the department prepared a digest of the 1955 National Conference on Rural Health.

Group Insurance.—In cooperation with the Personnel Department, this department prepared a brochure outlining the Association's new program of hospital, surgical, and medical insurance for employees, including a major medical expense policy.

Editorial Services.—The department provided editorial assistance and public relations counsel to various other departments in Association headquarters in connection with the preparation of literature and the publicizing of reports or projects.

SERVICES TO PRESIDENT AND PRESIDENT-ELECT

The executive assistant assigned to the President and President-Elect carried out the following activities: trips, 17; speeches (research and editorial assistance), 12; advance press releases, 22; press interviews arranged, 25; press conferences arranged, 2; radio and television appearances arranged, 10; and special articles or editorials (research or editorial assistance), 3. He also assisted in the handling of a large volume of correspondence from medical societies, physicians, and the general public.

PRESIDENTIAL INAUGURATION PROGRAM

The department for the third successive year handled all arrangements, promotion, and publicity for the presidential inauguration ceremony at the annual meeting. The 1955 program in Atlantic City, called "Medicine's Proclamation of Faith," was broadcast over the ABC radio network. In addition to the usual promotion and publicity aimed at the general public, the medical profession, and convention registrants, special promotional efforts were made through eastern medical societies and hospitals and Atlantic City area schools, libraries, and churches. As a result, the program in Convention Hall attracted a capacity audience of 5,500. The addresses of Dr. Elmer Hess and Dr. Norman Vincent Peale were reprinted in a pamphlet made available to state and county medical societies.

GENERAL AND MISCELLANEOUS SERVICES

Editorial Services.—In addition to the work done for the President and President-Elect, the department assisted in the preparation of 10 speeches for officers and trustees of the Association. It also provided a number of special articles or editorials for THE JOURNAL, *Today's Health,* and outside publications on such subjects as the Miami Health Fair, the annual meeting, the Tulsa Health Survey, legislative policy, veterans' medical care, American Medical Association-American Legion relations, and dependent medical care.

Daily Bulletin.—The department staff published the Daily Bulletin at the Miami Clinical Meeting and the Atlantic City Annual Meeting.

PR Conference.—The seventh Annual Medical Public Relations Conference, held the day before the opening of the Miami Clinical Meeting, was planned by the department to focus attention on broad public relations problems of special interest to physicians.

Women's Activities.—Two staff members attended the annual meeting of the General Federation of Women's Clubs, distributed 1,400 health program kits prepared by the department, and staffed the American Medical Association exhibit at the meeting.

Exhibits and Kits.—Displays of public relations aids and programs were prepared for the annual meetings of the Louisiana State Medical Society and the American Women in Radio and Television. One hundred kits on the subject of socialized medicine were assembled to answer requests for that type of material.

Medical Assistants.—A department staff member carried out active liaison work with Harold Mickelson on a medical assistants survey; spoke before medical assistants' organizations and maintained contact with state and local groups; provided program planning kits for several state meetings; reviewed a manuscript on medical and dental secretarial duties, and began development of a "PR in Action" kit on the subject of medical assistants.

Guided Tour Program.—The department supervised the guided tour program in the headquarters building, continued refresher courses for present guides, and formulated advance plans for training 20 to 24 new guides in the latter part of 1955.

Secretary's Letter.—The department, as in past years, assisted in the writing and distribution of the Secretary's Letter, which is sent out weekly to approximately 3,500 national, state, and county medical leaders.

Office Plaques.—Distribution of "To All My Patients" plaques during this period brought the total sold to 22,524.

Photography.—Photographic services at the annual and clinical meetings and special conferences were arranged by the department, and prints were supplied for all mediums, organizations, and individuals requesting them.

Mailing Lists.—Department staff members spent considerable time revising and modernizing the mailing lists not only of the Public Relations Department but also of other councils, bureaus, committees, and departments in the headquarters building.

Liaison.—The department Director and the Director of Press Relations attended or spoke at many outside meetings in order to maintain liaison with other national organizations, state and county medical societies, and additional groups.

CONCLUSION

The department wishes to express its appreciation to the House of Delegates and the officers and Board of Trustees of the Association for their cooperation and support during the period of this report. It also thanks the state and county medical societies and the many departments and staff members at Association headquarters who have helped in formulating and carrying out a well-balanced public relations program for the American medical profession.

Report of Washington Office

To a considerable extent the activity of the Washington Office is governed by the interest of Congress in medical legislation. During the first session of the 84th Congress a record number of bills of medical interest was introduced, and hearings on one or more were under way most of the time. Relatively few were enacted into law, but this fact cannot be taken as evidence that Congress is withdrawing from this field. All bills introduced this year remain alive and ready for further congressional action when the second session opens next January. This year also there was a marked increase in medical activities in the executive departments—Veterans Administration, Defense Department, and Department of Health, Education, and Welfare. Complex scientific and technical problems arose in the production of Salk vaccine, and political, social, and financial issues soon were injected into the situation. All added to the work-load of the Washington Office.

Nearly 12,000 bills of all kinds were introduced, all of which were scanned by the Office staff. About 400 were found to be of sufficient medical interest to warrant reporting, the largest number followed in any first session. The Office staff analyzed these medical-interest bills for publication in the weekly Washington Letter and for the benefit of the Committee on Legislation. The Office also obtained more than 7,000 separate copies of bills. Some were sent in bulk to the secretary of the Committee on Legislation for distribution to the committee, and the remainder were mailed to the Chicago headquarters and to others who requested them. Step-by-step congressional action on these selected bills was reported in the Letter. Some hearings lasted weeks and others only one or two days. Each hearing was covered by Washington Office personnel, who also kept track of committee and floor votes, compromises, and other legislative developments. In the case of the more important bills, transcripts of the hearings and the committee reports were examined and additional copies sent to the Committee on Legislation and to other interested parties. As one of the steps in checking on legislation, the Washington Office wrote to the committee handling each bill being followed, requesting that it be informed of hearing dates. As hearings were scheduled, the Chicago headquarters staff and the Committee on Legislation were informed.

Representing the American Medical Association, 17 witnesses testified before congressional committees, and letters giving the official Association position were forwarded to committees in six other cases. The letters generally were prepared by the headquarters staff, then duplicated and forwarded to the appropriate congressional committees by the Washington Office. The witnesses, selected by the Board of Trustees and the Committee on Legislation, usually were briefed by the Washington Office staff prior to their appearance on Capitol Hill.

Because of the heavy load of medical bills under consideration on Capitol Hill, representatives of the Washington Office were in daily contact with congressional committees and committee staffs. By explaining the American Medical Association's point of view, they were able to improve legislation and eliminate many objectionable provisions. This involved personal conferences, telephone calls, and a vast amount of research in medical-social problems. In these technical dealings the Washington Office staff acted in consultation with the Chicago headquarters, the Committee on Legislation, and the Board of Trustees.

The staff was drawn into extensive conferences with congressional committee members and staffs on such diverse subjects as the investigation of narcotics traffic, Jenkins-Keogh legislation, pension plans, flood control, Alaskan mental health, and the Bricker amendment. Considerable time also was spent on the issue of whether optometrists should be held to have the same scientific knowledge as ophthalmologists in determining blindness under social security. Involved in these activities were the supplying of information and discussions of the best approach to the problems. This activity was in addition to the regular exchange of information and viewpoints with congressional sources on the many bills of medical interest taken up by committees.

The course of legislation on Salk vaccine is an example of how the Washington staff operated. The American Medical Association's position, as determined by the Board of Trustees, was that no new law giving the federal government mandatory control over distribution of the vaccine was needed but that the Association had no objection to a federal grant to pay for vaccine for needy families. Originally there was a great deal of agitation for a law to give the United States complete control over distribution and for an unlimited grant to buy vaccine for all eligible groups, whether or not they could afford to pay. American Medical Association witnesses outlined to committees the Association's position. Then, over a period of more than two months, members of the Washington Office staff kept in constant touch with congressional committee staffs and members, furnishing information and explaining the wisdom of the Association's position. At all times Chicago headquarters was kept informed of the developments. During this period the Washington Office maintained contact with the staff and agencies of the Department of Health, Education, and Welfare to give assistance in support of the Association's position. In the end, no new law was enacted for allocation of the vaccine. Instead, the Department of Health, Education, and Welfare was left to allocate the vaccine in a voluntary program that had the support of the pharmacists, the drug manufacturers, and the state health officers, as well as the American Medical Association. The grants law finally enacted set up a $30 million fund for the use of states, with each getting approximately enough to buy vaccine for a third of the children and pregnant women. This issue is not completely settled; the law expires next Feb. 15, before which time Congress will have time to amend the law, appropriate more money, or both.

Following is a brief summary of the session's net results:

Two-Year Extension of the Doctor Draft Act.—The Association opposed the two-year extension of the doctor draft act, and its opposition might explain some of the modifications made in the act. The extension was supported by leaders of both parties, who contrived a legislative situation that made a vote against the doctor draft also a vote against the extension of the regular draft, against the $100 extra pay for military doctors, and against subsistence allowances for service families.

Salk Vaccine.—As noted above, the law enacted regarding Salk vaccine calls for expenditure of $30 million in grants to states, designed to insure that no eligible person is denied inoculation because of inability to pay for the vaccine.

Mental Health Survey.—Congress approved grants for a national survey of mental health problems, a project that has the support of the American Medical Association.

Air Pollution Grants.—Under the air pollution grants program the United States will assist states, communities, and private industry in research on air pollution. This was supported by the American Medical Association.

Commissions for Male Nurses.—Reserve commissions for male nurses in the armed services were authorized.

No other important health legislation was enacted, although several bills passed either the House or the Senate and will be up for final decision during the next session. Included are a proposed national compulsory disability insurance program for covered employees aged 50 and older (passed the House), a plan for United States grants for the construction of research facilities (passed the Senate), and a bill providing construction grants for medical schools. The question of compulsory disability insurance will present the Association with probably its most difficult legislative problem next session. A bill for the commissioning of osteopaths in the medical corps of the military services, which passed the House, was held up in the Senate Armed Services Committee following a letter from the Secretary of the American Medical Association pointing out that the problems involved had not been sufficiently aired at the House hearings.

As more and more bills require the attention of the Association, the Washington Office is made aware of the increasing importance of a close person-to-person contact between the physician back home and the senators and representatives who respect and trust that physician. Specifically, if a congressman has been convinced by his home town doctor that medical legislation must be watched closely, that congressman is more inclined to listen to the American Medical Association's point of view as various bills come up for action. If there is no home town liaison, the congressman often is not too concerned about what the Association thinks. The constant need for an effective doctor-congressman relationship is one of the reasons the Washington Office staff annually attempts to contact state society officials. Last fall Dr. Frank E. Wilson, Washington Office Director, and other staff members covered all parts of the country, explaining national legislative problems at state and regional meetings to which were invited state medical society presidents, executive secretaries, legislative chairmen, and women's auxiliaries and others interested in Washington developments. In addition, staff members, in response to numerous requests, have spoken in many sections of the country to a wide range of organizations interested in medical legislation. Both these and the regional meetings have greatly benefited the staff by informing its members of local opinion and problems.

The Washington Office has another responsibility that has become more important and time-consuming over the last few years. It has grown into an information center on medical matters not only for the medical profession, which is kept up to date on Washington developments through our publications, but also for individual congressmen, congressional committees, national associations, government departments, and representatives of newspapers, wire services, television and radio networks, and magazines. The Library of Congress, as an agent of the Senate and the House of Representatives, continued to call on the Washington Office for information on technical-medical and socioeconomic medical problems. Newspaper correspondents and magazine writers have called on the Office frequently for assistance in gathering factual information. Individual members of Congress request assistance in answering constituents' mail on medical problems. National trade, labor, and fraternal organizations use the Washington Office as a ready source of information in medical problems they encounter. The Embassy staffs call repeatedly for information requested in their own countries. Questions concerning registration of foreign physicians and placement of foreign physicians are frequent. Inquiries into the military service and the doctor draft consumed considerable staff time, as did efforts to assist individual doctors who asked help from the Washington Office in solving their particular problems involving federal departments. In addition, members of the Washington staff worked with the Federal Civil Service Commission in developing a United States employee health insurance program and with the Defense Department in a program to make military medical careers more attractive to physicians. As a phase of this activity, the Washington staff also helped to arrange meetings between representatives of various American Medical Association councils and officials of government departments in an effort to solve problems in which each group had an interest.

As an additional means of helping the profession keep in touch with trends in national legislation, the Washington Office this year inaugurated a Quarterly Legislative Review. The first was published in April and the second in July. In these Special Reports, legislation was evaluated with attention centered on bills that were making progress in Congress. In these Reviews the legislation was described, its current status noted, and its prospects of enactment appraised. Also, the American Medical Association position was given in relation to each bill or each group of bills.

Other Washington Office publications continued as in previous years. New lithographic equipment was purchased this year to speed up processing and to make for efficiency. The weekly Washington Letter was changed to a four-page single-sheet publication, which was expanded to six or eight pages when the volume of bills was heaviest. A concerted effort was made to hold the Letter to four pages most of the time on the assumption that more pages, generally, would be less thoroughly read. A "legislative box score," started in 1954, was continued this year. It showed in tabular form the exact progress to date of the 30 to 40 most important bills being followed by the Washington Office. It was printed in the weekly Letter as legislative developments warranted. There is increasing evidence that in Washington as well as in the states the Letter is recognized as an authoritative, objective report on the federal legislative and departmental developments in medical fields.

To supplement the Letter, 18 Special Reports were issued between September, 1954, and July, 1955. Subjects included the federal medical budget, Hoover Commission medical services, mental health, the Eisenhower health program, complete membership of key congressional committees, the new Hill-Burton regulations, testimony of American Medical Association witnesses, and the Bricker amendment. The Special Report on federal medical spending has been described as the most complete, yet concise, listing of federal medical spending collected and published anywhere. It breaks down into separate spending activities many funds that are lumped into one in the official budget. This was reprinted in full by a number of medical publications and commented on by others. The Special Report on the Bricker amendment also was well received. Its object was to show why the medical profession favors treaty limitation. It was reprinted in full by nine state or regional medical journals and was used as the subject of editorials by others. One state medical society endorsed the distribution of 5,000 copies of this Special Report at a regional fair booth.

The single mailing list that is used for both the weekly Washington Letter and Special Reports presents a growing problem. This service is designed for physicians and others who take a special interest in federal medical legislation. Every two years "sudden death" cards are used in an effort to reduce circulation to those actually interested in the direction taken by federal medical legislation. If the recipient does not return the card by a certain date, his name automatically goes off the mailing list. In the summer of 1953 the mailing list was reduced to about 5,000 by this method. By June, 1955, circulation was past 8,500, approaching the maximum. Another "sudden death" card was sent out in August.

The Month in Washington, inaugurated in December, 1953, was continued as a service to state and regional journals. This three-page report, mailed from Washington on the ninth of every month, is a summary of legislative and administrative developments in Washington. It is so written that it can be published as late as six weeks from the date received. Twenty state and regional journals use the Month in Washington, most of them as a regular feature. It is not supplied to the editors unless they write in and request it. In addition to the use made of the Month in Washington, 27 medical publications regularly reprint material from the Letter and Special Reports. Generally the material is printed intact, but in some cases it is made the basis of editorials.

For five years the Washington Office has been supplying The Journal with a weekly coverage of Washington news, which is carried in the front advertising section. The Office also supplies The Journal with a column devoted to new federal medical legislation.

Report of Committee on Legislation

Although this report would normally cover the period ending June 30, 1955, it is necessary to include the months of July and August to depict accurately the activities of the Committee on Legislation and present a true view of the legislative interests of the Association. It is normal for the closing weeks of a session of Congress to be its most productive period. The first session of the 84th Congress followed this pattern. Only 127 measures became law through June 30, 1955. An additional 236 bills were enacted between that date and the adjournment of the session on Aug. 2, 1955. Presidential action on these later acts was not completed until Aug. 15, 1955. This report, therefore, covers the period from Oct. 1, 1954, through Aug. 31, 1955. During this period the Committee on Legislation has held five meetings, in the course of which it has analyzed 279 new bills embracing 97 major legislative proposals. The Committee has also considered 10 major policy questions not yet introduced as legislation. A policy position on each of these matters has been recommended to the Board of Trustees. On Nov. 29, 1954, Drs. Clark Bailey, Harlan, Ky., and Chauncey L. Palmer, Harrisburg, Pa., were elected to succeed themselves for additional five year terms as members of the Committee.

With the convening of the first session of the 84th Congress in January, 1955, bills of interest to the profession of medicine were introduced at an unprecedented rate. During both sessions of the 83rd Congress, a total of 16,470 bills were introduced. Of that number, 407 bills had medical implications. In the first session of the 84th Congress alone, 11,914 measures were introduced. The Washington Letter reported 403 of these, only 4 less than the total for both sessions of the preceding Congress. The major legislative proposals analyzed by the Committee increased 50% over the preceding year. Divided control of the executive and legislative branches, as well as the discovery by both political parties of the public appeal of health legislation, seems to account for the increased legislative activity. Since 1956 is a presidential election year, indications are that the second session of the 84th Congress, which convenes in January, will be even more active.

First Session, 84th Congress

There follows a chronological list of the measures on which either oral or written statements were presented to the committees or members of Congress, together with the names of the witnesses, a brief résumé of each proposal, a note as to its status at the end of the first session of the 84th Congress, and an indication of the nature of the testimony submitted by the Association. If the bill was enacted, the Public Law number is given. Bills that were still pending at the time of the adjournment of the first session, on Aug. 2, 1955, remain active and may again be considered when the second session convenes in January.

Title VI, H. R. 3458 and Title VI, H. R. 3720.—These two identical omnibus bills, containing six separate titles, form the principal part of the Eisenhower administration's health program. The purpose of Title VI is to amend the Public Health Service Act to authorize a five year program of grants to states for mental health services and to authorize a new five year program of special project grants for the development of improved methods of care, treatment, and rehabilitation of the mentally ill. The position of the Association was one of active support. The interest and activities of the Association in the field of mental health since 1930 was related by Drs. David B. Allman and Leo H. Bartemeier in their testimony on March 10, 1955, before the Subcommittee on Health and Science of the House Committee on Interstate and Foreign Commerce. The scope of the growing problem of mental illness was outlined. Extension of the present program was supported because of the magnitude of the mental health problem and the conviction that the limited federal funds previously expended have been properly handled and have resulted in definite improvement of mental health work in the fields of training, treatment, and rehabilitation. It was emphasized, however, that the position of the Association is limited to support of a temporary federal program in this area, and it was again recommended that the entire question of defining local and federal responsibilities in the public health field be carefully analyzed by the Congress.

These bills remained pending in the Committee on Interstate and Foreign Commerce of the House of Representatives at the close of the first session of the 84th Congress.

H. J. Res. 230.—The stated purpose of this bill was to promote an intensive survey in the field of mental health by authorizing the Surgeon General of the Public Health Service, over a three year period, and, on the recommendation of the National Institute of Mental Health, to make grants totaling $1,250,000 to private, nongovernmental agencies, best qualified by virtue of training and knowledge, for the purpose of conducting a thorough, professional, and impartial study of all aspects of the mental health problem, including methods and practices in diagnosing, treating, and rehabilitating the mentally ill. The committee was informed in the above referred to testimony of March 10, 1955, of the leadership of the American Medical Association, in cooperation with the American Psychiatric Association, in forming the Joint Commission on Mental Illness and Health. The Joint Commission will make a national survey of all aspects of the present status of resources and methods of diagnosing, treating, and caring for the mentally ill and retarded, both within and outside of institutions. It will formulate, on the basis of this survey, a feasible program for the fundamental improvement of methods and facilities for the diagnosis, treatment, and care of the mentally ill and retarded. Dr. Bartemeier explained the hope that such a project might evolve fundamental departures from traditional concepts and methods of dealing with mental illness and thus lead to a far more effective attack on the problem. Inasmuch as this resolution embodies substantially the objective of the Association and outlines a method for financing the activities of the survey while preserving its freedom from federal control, the Association wholeheartedly approved H. J. Res. 230.

At the suggestion of the Secretary of Health, Education, and Welfare, the bill was amended to make it clear that the responsibility for conducting the proposed survey would rest with the organization to which grants were made and not with the Surgeon General of the Public Health Service. A clean bill, H. J. Res. 256, was then introduced, and enacted as Public Law 182, 84th Congress.

H. R. 2967.—The stated purpose of this bill was to provide for strengthening the reserve forces of the armed forces by permitting limited inductions for reserve service with only a six month period of active duty training. In a letter to Representative Overton Brooks, chairman of subcommittee no. 1 of the Committee on Armed Services of the House of Representatives, Dr. George F. Lull, on March 17, 1955, urged the establishment of sound principles in administering such a training program because of the possibility that it would be the foundation on which a system of universal military training could be based. Stating that the Association took no position on the merits of such a system, the letter commented on the medical aspects of the program. The previously established position of the Association in three medical areas was reaffirmed. The letter recommended (a) that individuals whose aptitudes or previous accomplishments indicate that their most effective contribution can be made as a trained professional man should be identified as early as possible and deferred from induction until the completion of their professional education; (b) that current medical care of trainees be provided on the same basis as that furnished to personnel of the armed forces, with consideration of a reduction of the physician-trainee ratio due to the preferred medical risks involved; and (c) that civilian physicians or reserve medical officers be utilized for preinduction, induction, and periodic reserve physical examinations. The Association also expressed unalterable opposition to the extension of Veterans Administration care for non-service-connected conditions in trainees under the proposed program.

After bitter debate over nonmedical features of the bill, H. R. 7000 was substituted and enacted as Public Law 305, 84th Congress, without incorporating the recommendations of the Association.

Title VI, S. 886.—This is the Senate companion bill to H. R. 3458, the administration omnibus health bill that was discussed above. The position and testimony of the Association that were presented by Drs. David B. Allman and Leo H. Bartemeier before the Subcommittee on Health of the Senate Committee on Labor and Public Welfare on March 30, 1955, were identical to those outlined under H. R. 3458.

The bill is still pending before the Senate Committee on Labor and Public Welfare.

S. 724.—The purpose of the bill was to create a government commission to conduct a study similar to that proposed in H. J. Res. 230, discussed above. Because of the preference of the Association for the private study in this area, no position was taken on S. 724. This fact was noted in the testimony presented on March 30, 1955, before the Senate Committee on Labor and Public Welfare.

This bill also remains pending before the Senate Committee on Labor and Public Welfare.

S. J. Res. 46.—This bill is the Senate companion bill to H. J. Res. 230, discussed above. The position and testimony of the Association, which was also presented on March 30, 1955, to the Senate Committee on Labor and Public Welfare were identical to those submitted to the Committee on Interstate and Foreign Commerce of the House of Representatives on H. J. Res. 230.

After hearings on the measure, the Committee on Labor and Public Welfare of the Senate favorably reported the House version, H. J. Res. 256, which was enacted as Public Law 182, 84th Congress.

S. 849.—This measure would amend the Public Health Service Act to authorize 30 million dollars annually for three years for federal matching grants to nonprofit, accredited schools of medicine, dentistry, and osteopathy and to hospitals for the construction of nonfederal research and laboratory facilities. These facilities would be used for research into the cause of a number of chronic and crippling diseases and conditions. Dr. George F. Lull submitted a letter on April 1, 1955, to the Committtee on Labor and Public Welfare of the Senate, indicating that the Association opposed the bill because of the conviction that an emergency of sufficient proportions to justify federal subsidy had not been demonstrated in this broad field. The letter stated that, while the Association is wholly in accord with the desire to improve and expand medical research, it was not felt that the federal construction subsidy proposed would accomplish the purpose. On April 28, 1955, Senator Lister Hill, Chairman of the Senate Committee on Labor and Public Welfare, wrote the Association urging reconsideration of its position, arguing that S. 849 was intended to curtail the existing construction grant program of the Public Health Service and bring it within the purview of the American Medical Association policy on grants-in-aid. Based on this request, the Association position was again reviewed by the Board of Trustees, and on June 6, 1955, Dr. Lull wrote Senator Hill, stating that in the opinion of the Association the measure would be a new and additional program of federal aid, neither supplanting nor requiring coordination with existing programs and that the Association adhered to its original views.

S. 849 was favorably reported by the Committee on Labor and Public Welfare on July 14, 1955, and passed the Senate by a voice vote on July 18, 1955. At the close of the first session of the 84th Congress, it was pending before the Committee on Interstate and Foreign Commerce of the House of Representatives.

Title III, S. 886.—This title of the administration's omnibus health bill would authorize the appropriation of 17 million dollars in gradually increasing annual amounts over a five year period, as grants-in-aid to the states for the vocational training of practical nurses. The federal share of approved projects would be 75% the first and second years and 50% in the remaining three years. The program would be carried out through state boards of vocational education. The position of the Association was one of opposition to the underlying theory of the bill. This position was presented by Dr. Cleon A. Nafe before the Subcommittee on Health of the Committee on Labor and Public Welfare of the Senate on April 14, 1955. The position was taken because of the belief that it was neither necessary nor wise for the federal government to enter the area of state responsibility for vocational education unless an emergency were clearly demonstrated. The Association urged a fact-finding survey.

The bill remains pending before the Senate Committee on Labor and Public Welfare.

S. 929.—The purpose of this bill was to increase the number of practical nurses and auxiliary health personnel by providing federal grants-in-aid to state vocational education programs. The bill would amend the Vocational Education Act to establish a program for training such personnel. State matching funds would be required in 1957, increasing to 50-50 matching in 1959. Although the Association took no action on S. 929, its position of opposition to the principle underlying Title III of S. 886, which was presented on April 14, 1955, to the Senate Labor and Public Welfare Committee, is applicable to this bill also. The committee was so advised.

The bill remains pending in the Senate Committee on Labor and Public Welfare.

H. R. 2847.—This bill would provide a statutory deferment for certain scientific personnel in addition to the provision for deferment at the discretion of the President, which is now contained in the Universal Military Training and Service Act. A person whose capabilities or training marked him as a scientific specialist could apply for deferment, after enlistment or induction, and those selected for deferment would be released from active duty within a 90 day period. On April 19, 1955, in a letter to Representative Paul J. Kilday, the chairman of subcommittee no. 2 of the Committee on Armed Services of the House of Representatives, Dr. George F. Lull reiterated the position of the Association in regard to the deferment from military service of individuals undertaking scientific professional training until such time as they were fully qualified to serve in their professional capacity. The letter recommended that a mechanism other than induction be devised to identify such individuals for deferment, thus eliminating the necessity of a loss of 90 days in their professional training while deferment was under consideration.

H. R. 2847 remains pending before the Committee on Armed Services of the House of Representatives.

S. 890.—This bill was introduced for the purpose of extending the Water Pollution Control Act of 1948 and amending the mechanism for discharging the federal responsibility in this field. Proposed changes in the law included a broadened research authority, which would permit a decentralization of research activities, and authority for using federal grant funds in the overall state control program rather than limiting grants to special categories of activities.

The position of the Association was presented on this bill and on S. 982 by Drs. James R. McVay and J. Lafe Ludwig before the Subcommittee on Flood Control—Rivers and Harbors, of the Committee on Public Works of the Senate on April 25, 1955. The position was one of active approval, recounting that the philosophy of the original act recognized the primary responsibility of the states for the control of water pollution and at the same time provided for federal activity in those areas of primary federal concern. It was stated that, in the light of seven years' experience under the old act, the proposed changes would make for more effective cooperation between the state and federal governments and permit the exercise of greater local initiative in the solution of local problems. It was recommended, however, that provision be made for medical representation on the Water Pollution Control Advisory Board.

S. 890 passed the Senate by a voice vote on June 17, 1955, and was favorably reported by the Committee on Public Works of the House of Representatives on July 26, 1955. It is presently pending on the Union Calendar of the House of Representatives.

S. 928.—Modeled generally after the Water Pollution Control Act, this measure would authorize the Surgeon General of the Public Health Service to adopt programs for eliminating or reducing air pollution. Authorizing a five year appropriation for grants-in-aid to states and to provide individuals and industries, the measure permits the Surgeon General to encourage cooperative activities among political subdivisions and technical research by private industry in combating air pollution. The Public Health Service is also authorized to make investigations and studies and to publish reports thereon. This measure received the active approval of the American Medical Association in the aforementioned testimony of April 25, 1955. The committee was told that further research on the subject and its relation to health is highly desirable and that the proved mechanism of the Water Pollution Control Act, founded on a philosophy recognizing the primary responsibility of state and local governments, was the preferred approach to the subject. A recommendation for the addition of one or more physicians to the Air Pollution Control Advisory Board was made.

S. 928, with minor amendments, was enacted as Public Law 159, 84th Congress.

H. R. 2886.—This measure was an administration bill to extend without substantial change the special draft of older physicians, dentists, and allied specialists for an additional two years beyond its scheduled expiration date of June 30, 1955. When the outbreak of the Korean War in June, 1950, precipitated the immediate need for a large number of physicians in the armed forces to provide medical care for a temporarily increased number of service personnel, the American Medical Association supported the special draft of older physicians, many of whom had received their medical education at the government's expense, as an alternative to the recall to active duty of medical officers who had served long and arduously in World War II. Despite its discriminatory nature, the measure appeared necessary at that time. Subsequent extensions of the law were supported because of a continuation of the original condition. Commencing in 1954, however, there were indications that the Department of Defense was commencing to rely on the special draft as a means of staffing for an indefinite period the military medical services. Several conferences were held with responsible officials of the Department of Defense and the Selective Service System, in an effort to obtain data relating to the legitimate military needs for physicians and the numbers of physicians available for service under the regular draft. Efforts to obtain reliable estimates from military and selective service authorities proved unsuccessful.

On April 29, 1955, Drs. Reuben B. Chrisman Jr. and Edward L. Turner and Mr. C. Joseph Stetler testified before the Committee on Armed Services of the House of Representatives on this bill and H. R. 4645, 84th Congress.

Because of the critical situation in Formosa and the possibility that armed conflict involving the United States might break out momentarily in the Far East, the Association was reluctant to oppose extension of the law actively while the possibility existed that defense officials were in possession of material information bearing on its necessity that could not be divulged for security reasons. The position of the Association, which was presented to the Committee on Armed Services of the House of Representatives, was therefore one of qualified opposition to the extension of the special doctor draft. It was emphasized that, based on information available to the Association, there appeared to be no necessity for its extension. However, recognizing that additional facts might be known to officials of the Department of Defense and the Congress, it was recommended that, should any extension of the law be deemed necessary by the Congress, such extension be limited to a "standby" form of law. The Association specifically recommended that in such an event provision should be made to assure that young physicians having obligations for military service under the regular draft are called by Selective Service before calls are made on older physicians, who have no such obligation for service. It was further recommended that authority to call physicians in Priority III and Priority IV be invoked only by action of the President in time of war or national emergency later declared by the Congress. The committee was informed that both the Health Resources Advisory Committee of the Office of Defense Mobilization and the Task Force on Medical Services of the second Hoover Commission on Organization of the Executive Branch of the Government had recommended against extension of the special draft.

A clean bill, H. R. 5946, including the doctor draft extension, the military medical scholarship proposals of H. R. 4645, and the extension of the $100 monthly special pay, was introduced and favorably reported by the Committee on Armed Services of the House of Representatives. Three days later, on May 5, 1955, to avoid an impending floor fight on the medical scholarship provisions, a new bill, H. R. 6057, was introduced and favorably reported by the Committee on Armed Services. This measure contained only the doctor draft provisions and the extension of special pay. Representative Howard W. Smith, Chairman of the Committee on Rules of the House of Representatives, and other members of the Committee on Rules were not satisfied with the hearings conducted by the Committee on Armed Services. They refused to grant the bill clearance for consideration by the House of Representatives until further information was developed.

On May 28, 1955, Dr. Ernest B. Howard, Assistant Secretary of the American Medical Association, wrote Chairman Smith stating that, since there had now been an opportunity to study carefully the hearings before the Committee on Armed Services, including the justifications offered by the Department of Defense and the Selective Service System for extension of the law, it was apparent that enactment of H. R. 6057 in its present form was unwarranted. Dr. Howard urged that the confusing figures on requirements and availability cited by the Department of Defense and the Selective Service System be carefully reviewed before clearance was granted the bill by the Committee on Rules. Such clearance was never granted, and H. R. 6057 died in the Committee on Rules of the House of Representatives.

The Senate Committee on Armed Services, however, took the unusual action of holding hearings on the measure. The position of the Association having been solidified during the Annual Meeting at Atlantic City, N. J., Dr. Reuben B. Chrisman Jr. testified before the Senate Committee on Armed Services on June 9, 1955. The testimony of Dr. Walter B. Martin, who was unable to leave Atlantic City, was presented by Mr. R. G. Van Buskirk. The Association now opposed extension of the doctor draft law without reservation and pointed out that it was being used as a mechanism to replace career medical officers who were resigning in alarming numbers. Congress was urged to determine the legitimate medical manpower requirements of the armed forces and to provide those needs through the intelligent utilization of civilian physicians and a program designed to make career military service more attractive to experienced physicians.

On June 14, 1955, the Senate Armed Services Committee tacked the doctor draft extension onto H. R. 3005, the bill extending the regular draft, which had previously passed the House of Representatives on Feb. 3, 1955. The amended measure, including the doctor draft extension, passed the Senate by voice on June 16, 1955. Because of the Senate amendment, a conference was necessary. H. R. 3005, containing an amended version of the doctor draft, was reported from conference on June 23, 1955. This amended version reduced the maximum age from 50 years to 45 years and contained a provision exempting from induction special registrants over the age of 35 who had previously applied for commissions as medical or dental officers in one of the armed forces, if they had been rejected solely on the basis of a physical disability. On June 28, 1955, two days before the scheduled expiration of both the regular draft and the doctor draft act, the conference report was called up on the floor of the House of Representatives. After a spirited debate, a motion to recommit the bill to conference was lost on a roll call vote of 221 to 171. Through a parliamentary maneuver, it was necessary for opponents of the doctor draft extension to offer a recommittal motion that appeared to endanger the extension of the regular draft. After failure of the effort to recommit the bill, it was promptly passed by both the House and the Senate and became Public Law 118, 84th Congress.

H. R. 4645.—This bill, considered by the Committee on Armed Services of the House of Representatives in connection with the doctor draft extension, was designed as permanent legislation intended to assist in solving the medical manpower problem of the armed forces by providing scholarships for the professional education of physicians and dentists. Under the bill, scholarship students would agree to accept reserve commissions for a period of eight years and to serve on active duty for a period of either three or four years, exclusive of internship and residency training, depending on the amount of scholarship assistance received.

The American Medical Association, in its testimony of April 29, 1955, before the Armed Services Committee of the House of Representatives, supported the principle of scholarship aid in return for reasonable agreements to render professional service but recommended the incorporation of three safeguards in the program. These were (a) that the student not be approached until he is fully matriculated in the medical school; (b) that the student not expect nor receive special consideration so far as meeting the required standards of scholarship, behavior, and ethics and that failure in these areas shall automatically terminate the scholarship agreement with the student; and (c) that the total number of such scholarship students in any year's class in all of the schools and the number in all of the classes in any single school shall not exceed 5%. It was further stated that, while such a program would expose a large number of young physicians to military medicine as a possible career and to some extent would relieve the necessity for the involuntary service of other doctors, the bill alone was not the answer to the problem of increased resignations of military medical officers. It was urged that extensive efforts be made to make careers in military medicine attractive to physicians.

Although the Committee on Armed Services originally reported a clean bill, H. R. 5946, containing this proposal, that bill was allowed to die, and the measure was returned to the Committee on Armed Services for further study. It appears that this action was taken because of a failure on the part of some members of the committee to understand that the principal purpose of the bill was not to increase the output of physicians by the nation's medical schools but to obtain physicians for the armed services. At the close of the first session of the 84th Congress, the measure remains pending before the Committee on Armed Services of the House of Representatives.

Extension of $100 per Month Special Pay for Physicians and Dentists.—The Administration proposal, which was not introduced as a separate bill, would have limited payment of this special pay after July 1, 1955, to those physicians who agreed to serve periods of active duty in excess of their basic two year liability under the regular draft. The Association warned of the adverse effect on morale that would result if some medical officers were denied the additional pay while others received it. It was urged that the special pay provision be extended without change so that the $100 monthly additional pay would be available to all medical and dental officers. This recommendation was accepted and was contained in both H. R. 5946 and H. R. 6057 when these bills were reported from the Committee on Armed Services of the House. It was incorporated in the form recommended by the Association in H. R. 3005, when the Senate Armed Services Committee tacked the doctor draft extension onto that bill. It was finally enacted with the doctor draft extension as Public Law 118, 84th Congress.

S. 1323.—The stated purpose of this measure is to authorize a five year program of federal grants, on a matching basis, for construction of medical education and research facilities. Grants totaling 50 million dollars annually for the five year period would be authorized. The funds would be used for matching grants to assist public or nonprofit accredited medical schools in the construction, expansion, remodeling, and alteration of teaching and research facilities. Any existing or proposed school could obtain a grant of $25,000 for initial planning. Thereafter, additional grants would be limited to 50% of the cost of construction or alteration at existing schools, and two-thirds of the cost of construction of new schools, except that existing schools could also obtain grants of up to two-thirds of the cost of construction or alteration by giving adequate assurances that freshman enrollment would increase 5% over 1954-1955 figures. Total grants to any school over the period of the law could not exceed 3 million dollars. At the discretion of the school, 20% of the grant for new construction could be allotted to permanent endowment for maintenance of the new facility. Otherwise, the bill provides no funds for operation, salary, or maintenance.

The position of the Association, which was one of approval with suggested modifications, was presented by Drs. F. J. L. Blasingame and Walter S. Wiggins before the Subcommittee on Health of the Committee on Labor and Public Welfare of the Senate on May 6, 1955. It was stated that the House of Delegates on June 13, 1951, had adopted a resolution calling for a one-time federal grant-in-aid, on a matching basis, based on the Hill-Burton Act formula and administrative machinery, for construction, equipment, and renovation of the physical plants of medical schools. Under this resolution no part of the funds could be used in any manner for operational expenses or salaries. It was recommended that two changes be made in the bill. Concern was expressed that the measure would needlessly establish a precedent for urging or inducing medical schools to increase their enrollment more rapidly than justified by their facilities, personnel, and teaching material. The Association expressed its conviction that medical schools would increase enrollment of their own volition as rapidly as possible and recommended that the inducement feature providing a more favorable matching ratio for increased enrollment be eliminated from the bill. It was further recommended that the Federal Council on Medical Educational Facilities, which the measure would establish, include six members selected from among leading medical authorities and that the public members include persons skilled in the broad aspects of engineering, education, finance, and architecture.

At the close of the first session of the 84th Congress, S. 1323 remains pending before the Committee on Labor and Public Welfare of the Senate.

Part E, S. 434.—This bill would in part establish a permanent program of federal subsidy to medical education by paying annually to medical schools sums of $500 or $1,500 for each medical student enrolled. The higher sum would be available on a per capita basis to the extent that the enrollment was increased over the average past enrollment. No local matching of these funds would be required, and it is the purpose of the measure to provide funds for staff and faculty salaries, operation and maintenance of facilities, and acquisition of equipment.

The position of the Association on this measure was one of active opposition. It was presented by Drs. Blasingame and Wiggins to the Subcommttee on Health of the Committee on Labor and Public Welfare of the Senate on May 6, 1955. It was stated that the continuing subsidy, in the form presented, would inevitably lead to undesirable federal regulation of schools of medicine. Further, opposition was expressed to the wide spread between $500 to be paid for each student up to the average past enrollment and the $1,500 to be paid for each additional student, because such a financial premium might induce certain schools to enroll more students than they could properly accommodate. Such a situation would dilute the quality of medical education and be a disservice to the profession and the public.

This measure also remains pending before the Committee on Labor and Public Welfare of the Senate.

S. J. Res. 1.—The "Bricker Resolution," reintroduced in the 84th Congress, is intended to amend the Constitution to prevent the abuse of the treaty power. Recent Supreme Court decisions have made it apparent that treaties and executive agreements may be used to override state constitutions, laws, and customs in areas never before supposed to be proper subjects for federal regulation; to expand the legislative powers of Congress beyond those delegated in the Constitution; and to enact domestic law by means of treaty rather than through the open processes of a representative legislature.

In a letter dated May 16, 1955, to Senator Estes Kefauver, Chairman of the Subcommittee on Constitutional Amendments of the Senate Committee on the Judiciary, Dr. George F. Lull expressed the vigorous endorsement of the American Medical Association of the principle of a constitutional amendment designed to restore to the states and to the Congress those legislative powers that, until recent years, had been thought to be secured to them by the Constitution. It was stated that the Association has no preference as to the language best suited to accomplish this purpose but feels that recent developments make such an amendment vitally necessary. The fact that treaties have actually been ratified by the vote of only one Senator and that executive agreements need not even be submitted to the Senate was pointed out. In addition, the effect of the Italian Treaty of 1948 in altering the medical licensure laws of several states was shown. Finally, the threat to American medicine represented by the myriad conventions adopted by the International Labor Organization and other international organizations was related.

This measure was favorably reported by the subcommittee by a vote of 3 to 2. At the close of the first session of the 84th Congress it remains pending before the Senate Committee on the Judiciary.

S. 1984 and S. 2147.—The general purpose of these two bills, which are somewhat similar, was to authorize the appropriation of federal funds for the purchase and distribution of poliomyelitis vaccine. S. 1984, an administration bill, would authorize an appropriation of 28 million dollars to assist states in establishing a grant-in-aid program for the immunization of children whose parents were unable to pay for the vaccine. S. 2147 would authorize federal appropriations for the purchase and distribution of vaccine for all, regardless of age or ability to pay. Both proposals would require states, as a condition of participation in the federal funds, to present a program, to be administered by a single state agency, providing for the free vaccination of all individuals in certain specified groups designated by the Department of Health, Education, and Welfare.

Dr. Julian P. Price testified on June 15, 1955, before the Committee on Labor and Public Welfare of the Senate, stating that, while the Association was not opposed to S. 1984, it was not in sympathy with the purpose or program included in S. 2147. Dr. Price reported to the committee the resolutions adopted by the House of Delegates at the annual meeting in Atlantic City, N. J., only six days before his testimony. These resolutions disapproved the purchase and distribution of the "Salk polio vaccine" by any agency of the federal government, except for those unable to procure it for themselves, and recommended that federal funds for such a program be allocated to the proper state agencies. Because consideration had been given by the Senate Committee on Labor and Public Welfare to the possibility of legislation providing for allocation and control of the distribution and use of the vaccine, the Association testified against such a program, urging that the Congress allow the vaccine to be produced, distributed, and administered in accordance with the past procedures on any new drug or vaccine.

In the closing days of Congress, a clean bill, S. 2501, was introduced and favorably reported to the Senate. This measure was a compromise between the programs outlined in S. 1984 and S. 2147. In the meantime, the Committee on Interstate and Foreign Commerce of the House of Representatives had reported its own bill, H. R. 6286. When S. 2501 reached the floor of the House, the provisions of the House bill were substituted, and S. 2501 was passed by the House. It was sent to conference, where it was further modified, and on the last day of the first session, Aug. 2, 1955, it was enacted as Public Law 377, 84th Congress. Under the new law, for which 30 million dollars has been appropriated, funds will be allocated to the states in accordance with the states' financial need and the number of unvaccinated children through age 19. Sufficient funds are available to inoculate approximately one-third of the eligible children and one-third of the expectant mothers. If the state program is administered by a public agency, no means test may be applied to determine eligibility for vaccination. This authorization expires in February, 1956, at which time further extension will undoubtedly be considered.

H. R. 4743.—This measure is the House companion bill to S. 1323, 84th Congress, discussed above.

On June 16, 1955, Drs. F. J. L. Blasingame and Walter S. Wiggins testified before the Subcommittee on Health and Science of the Committee on Interstate and Foreign Commerce of the House of Representatives. The position of the Association on H. R. 4743 is the same as that outlined under S. 1323.

The bill is still before the Committee on Interstate and Foreign Commerce of the House of Representatives.

H. R. 9 and H. R. 10.—It is the purpose of these identical bills, sponsored by the American Bar Association, to obtain a tax deferment privilege for the self-employed who desire to set aside a portion of their current income for the creation of voluntary retirement funds. Such a privilege is now available to employees through participation in pension plans sponsored by their employers. Under the proposals, a self-employed individual would be permitted to set aside limited funds annually for a restricted retirement fund. This amount would be exempt from federal income taxes in the year it was earned and placed in the retirement fund, but federal income taxes would be paid after retirement as the money was withdrawn in the form of a pension, probably at a lower rate because of a reduction in income.

Drs. Edwin S. Hamilton and Frank G. Dickinson testified before the Committee on Ways and Means of the House of Representatives on June 27, 1955. The position of the Association, as it has been in past years, was one of active support of the measures. This position is based not only on the fact that simple fairness requires that the self-employed be afforded the same incentive to provide, on a voluntary basis, for their own retirement as is now afforded employed individuals but that the continued maintenance of the private practice of medicine is adversely affected by the many "fringe benefit" opportunities becoming available to the young physician who is willing to forego private practice and enter his profession as a salaried employee.

The Committee on Ways and Means voted 16 to 8 to report out a slightly amended version of H. R. 9 but did not do so before the adjournment of the first session. Consequently, the measures remain pending before the Committee on Ways and Means of the House of Representatives.

H. R. 6286 and H. R. 6287.—These two identical bills are House companion bills to S. 1984, previously discussed.

On June 28, 1955, Dr. George F. Lull wrote to the chairman of the Committee on Interstate and Foreign Commerce of the House of Representatives outlining the position of the Association with regard to the federal role in poliomyelitis vaccination. The views expressed were the same as those presented on S. 1984. On June 21, 1955, Dr. Julian P. Price, representing the American Medical Association, participated in an unusual symposium before the House Committee on Interstate and Foreign Commerce. Leading medical experts were asked to discuss the technical medical aspects of the production and use of the Salk poliomyelitis vaccine for the instruction of members of the committee.

After amendments, including a prohibition against the use of any means test in a state vaccination program utilizing federal funds, H. R. 6286 was favorably reported to the House of Representatives. After the Senate passed S. 2501, the language of the House bill was substituted, as an amendment, for the language of the Senate bill. The House then passed S. 2501. After conference, this measure was enacted as Public Law 377, 84th Congress.

H. R. 483.—This measure would authorize the appointment of osteopaths in the medical corps of the armed forces.

On July 26, 1955, Dr. George F. Lull wrote to Senator Richard B. Russell, Chairman of the Committee on Armed Services of the Senate, outlining the opposition of the American Medical Association to this bill. The position of the Association is based on the belief that the appointment of osteopaths as medical officers will endanger the health and welfare of military personnel, will contribute to the demoralization of career services both in the medical corps and in the line, will endanger the accreditation of residencies and internships in military hospitals, and will unnecessarily hinder the utilization of civilian consultants and other civilian physicians by the armed forces.

After cursory hearings on July 11 and July 12, at which the Department of Defense supported the measure, the bill was favorably reported by the Committee on Armed Services and passed the House on July 18, 1955. It is pending before the Armed Services Committee of the Senate.

H. R. 7225.—In mid-June, 1955, the Democratic majority of the House Committee on Ways and Means, with the approval of the House leadership, agreed to report a bill containing major amendments to the Social Security Act. Since this was largely a political move, it was decided that no public hearings would be held. This bill was introduced on July 11, 1955, favorably reported by the Committee on Ways and Means on July 14, 1955, and passed the House by a roll call vote of 372 to 31 on July 18, 1955. Despite vigorous efforts by the American Medical Association and others to slow down this legislative blitz, the only witnesses heard by the committee were representatives of the Department of Health, Education, and Welfare, who opposed the measure. The committee drew on previous hearings for its information in preparing the bill. This measure, if enacted, would amend the Social Security Act in five important respects. Cash disability benefits would be paid to covered individuals over the age of 50. The test applied would be "inability to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment which can be expected to result in death or to be of long-continued and indefinite duration." Disability determinations would be made by using the mechanism already established by enactment of the "disability freeze" in 1954.

Under the existing law survivors benefits are paid to children to age 18 and their mothers. The bill continues indefinitely such payments where the child meets the foregoing disability test. The retirement age for women would be lowered from 65 to 62. Coverage of the act would be expanded by including all self-employed persons except doctors of medicine. If the bill becomes law there is slight possibility that physicians will remain exempt from compulsory coverage. The tax on employer and employee would increase by 0.5% each and that on the self-employed by 0.75%, effective Jan. 1, 1956.

To medicine, the disability benefits are the most significant proposal. In addition to injecting the federal government deeply into the practice of medicine at the present time, this step would ultimately lead to the provision of health care to all citizens by the federal government. Because it is a piecemeal approach, rather than a frontal assault, the measure is doubly dangerous.

At the adjournment of the first session of the 84th Congress, H. R. 7225 was pending before the Senate Committee on Finance. Senator Harry F. Byrd, Chairman of that committee, has indicated that extensive hearings on the measure will be held in 1956.

Second Session, 84th Congress

All of the signs point to an unusually active and important session of Congress in 1956. Action can be expected on several matters of prime significance to medicine. Political considerations will weigh heavily in the Presidential election year. It will require diligent effort and wholehearted cooperation by all concerned to protect the interests of medicine and the public during the coming year. In preparation for the period ahead, the Committee on Legislation has undertaken three major projects.

Maps were prepared of each state showing the boundaries of the congressional districts in the state and the names and addresses of the senators and representatives. These maps also contained helpful information and instructions for the most effective communication with congressmen. In August, 1955, each member of the Association was sent a copy of the material pertaining to his state.

The Committee is undertaking to publish and distribute a legislative reference notebook to a limited number of key personnel in the states. This project will permit the accumulation of timely information concerning the background and status of the 10 or 12 most important legislative measures. When further action is taken on a measure, additional material will be prepared for insertion in the notebook and distributed by the Committee.

Finally, in an effort to secure a more complete exchange of information and to improve coordination with state and local medical societies, a series of regional legislative conferences has been scheduled for the fall of 1955. Preliminary registration indicates that attendance at these conferences will be appreciably greater than was experienced in the successful series of conferences held in the spring of 1954. The dates and places of the scheduled conferences are: San Francisco, Sept. 24; Chicago, Oct. 8; Omaha, Oct. 15; New York, Oct. 29; Atlanta, Ga., Nov. 6; and Dallas, Texas, Nov. 19.

Appreciation

In closing its report, the Committee wishes to express again its appreciation to the Board of Trustees, the Washington Office, the Woman's Auxiliary, and the officers and staff of the Association, as well as to the state medical societies, for their cooperation and assistance during the period covered by this report. The Committee particularly wishes to acknowledge the significant contribution of "key legislative personnel" and individual physicians, through whose efforts any measure of success that has been enjoyed is directly attributable.

Report of Law Department

In accordance with the recent change in reporting procedures adopted by the Board of Trustees, this report will cover the period from Aug. 1, 1954, to July 1, 1955. Inasmuch as the Law Department was established only a year ago, this will be the first report of significance that it has been able to provide.

The reorganization of the Department and the coordination of the various legal activities of the Association into a single unit has done much to improve the effectiveness of operations. During the period covered by the report, the Department has been able to continue satisfactorily the medicolegal services rendered by the former Bureau of Legal Medicine and Legislation and has in addition initiated a number of new projects and programs that will be of substantial value to the Association, the medical profession, and the public.

In addition to their regular duties, members of the staff of the Department serve as executive secretaries of the following councils or committees:

Judicial Council, Mr. Edwin J. Holman
Council on Constitution and Bylaws, Mr. George E. Hall
Committee on Legislation, Mr. Richard G. Van Buskirk
Committee on Medicolegal Problems, Mr. C. Joseph Stetler

This arrangement has resulted in the elimination of considerable duplication of effort and a more efficient program for each of the councils and committees involved. In this connection it should be noted that at the present time there are five attorneys in the Department in addition to the Director. The equivalent of two man years are required to provide staff assistance for the aforementioned groups, the most active of which are the Committee on Legislation and the Judicial Council. Inasmuch as separate reports will be filed by each of these councils and committees, no comment will be made here regarding their operations. The Director would like to express sincere thanks and appreciation, however, to the chairman and members of each for the full cooperation and pleasant working relationship that has prevailed.

General Legal Affairs

In conducting the day-to-day operations of an organization as large as the American Medical Association, it is understandable that a number and variety of legal problems are encountered. The Law Department's activities in this sphere include the representation of the Association in matters of a business nature in the same manner that the legal department of any large corporation furnishes legal advice and assistance to those charged with business management functions. The nature of this work most frequently involves the operations of the office of the Secretary and General Manager, the personnel office, the office of the Comptroller, the office of the Business Manager, and the Editor of The Journal.

The Department has rendered opinions on the liability of the Association regarding items intended for publication in the Directory, The Journal, the specialty journals and *Today's Health*. It has examined insurance policies and has prepared revised contracts of all types. Other duties in this field deal with the determination of liability with respect to local, state, and federal taxes. Questions concerning the registration of trade marks and the infringement of copyrights, as well as problems dealing with slander and libel, have also been presented. During the period involved, the Department has been able, through a close working relationship with the office of the Secretary and General Manager, to establish a uniform and systematic method for dealing with the general legal problems of the Association.

Liaison Activities

Shortly after the establishment of the Department, it became obvious that to be of maximum value to the Association it would be necessary to establish a closer liaison with the various permanent councils and committees having offices in the headquarters building. It was decided, therefore, to assign the members of the staff to act in a liaison capacity between those units and the Law Department. The attorneys indicated below, and on occasion the Director of the Law Department, attend the meetings of their particular councils or committees and are charged with responsibility for detecting legal questions involved in future plans or programs. They are also available on a day-to-day basis to answer questions that the members or staff of the council or committee may present. They also assist in the preparation of statements of policy to the extent that legal issues are involved:

Mr. George E. Hall: Committee on Cosmetics; Council on Mental Health; Council on Physical Medicine.

Mr. Bernard D. Hirsh: Council on Medical Education and Hospitals; Council on Industrial Health; Committee on Research.

Mr. Edwin J. Holman, Council on Rural Health, and Council on Medical Service.

Mr. Richard G. Van Buskirk: Council on Foods and Nutrition, and Council on National Defense.

Mr. William J. McAuliffe, Council on Pharmacy and Chemistry, and Committee on Pesticides.

In addition to the permanent councils and committees of the Association, there are a number of temporary committees and subcommittees at all times. Ten of these committees, which have been operating during the period covered by this report, have called on the Law Department for assistance. Either the Director of the Department or a member of the staff has been appointed as a member of the first three committees listed:

Committee on Scientific Councils
Committee on Standing Orders for Nurses
Task Force on Rehabilitation
Committee on Medical Practices
Committee on Medical Care Plans
Cooperating Committee on Graduates of Foreign Medical Schools
Committee on Specialties in Other Fields
Physician-Hospital Relations
Committee on Liaison with Labor and Management
Committee on Grievance Committees

Because of the nature of the work of these committees, the assistance given by the Law Department has in each instance varied considerably. It has been necessary in most instances, however, to participate in a number of committee meetings and answer legal questions that have arisen.

The Director of the Department has operated as a member and as unofficial secretary of the Committee on Scientific Councils and has assisted the chairman in the preparation of agendas and in making arrangements for and preparing minutes following the meeting of this committee. Extensive legal briefs have also been required in connection with the work of this committee. Considerable legal research and the preparation of statements have been involved in connection with the program of the Committee on Standing Orders for Nurses, the Cooperating Committee on Graduates of Foreign Medical Schools, and the Committee on Specialties in Other Fields. A detailed chronological development of certain of the Principles of Medical Ethics as well as a review of pertinent enabling statutes and court decisions has been prepared for the Committee on Medical Care Plans. An extensive study dealing with the disciplinary system of medicine was made and discussed in a paper prepared for the Committee on Medical Practices. This paper was published as part of the committee report that was submitted to the Board of Trustees.

In addition to these liaison activities within the Association, the Department has through correspondence and personal visits established and maintained active contact with the executive secretaries and the legal counsel for the state medical societies. In this way it has on a number of occasions been able to supply legal counsel with background material and pertinent citations in connection with pending or threatened state litigation. Representatives from the Department have on request spoken on medicolegal subjects on at least 30 occasions at state or local meetings. In a number of other instances they have accompanied the Department's exhibit on Professional Liability or The Drunken Driver to state and county meetings.

Although a statistical record is not kept of the number of letters received and answered by the Department, there is no doubt that several thousand are handled in the period of a year. These letters from individual physicians, lawyers, state and county medical societies, and outside organizations deal with a wide variety of problems in the medicolegal field. This correspondence has involved such diverse topics as the procedure for locating missing persons, the requirements for practicing medicine in Italy, and questions of Canon law.

On behalf of members of the Association, the Department has taken up matters affecting their status with government agencies. For example, it was able to achieve some measure of success with the Bureau of Internal Revenue in clarifying the attitude that had previously been taken by certain local collectors relative to whether physicians may ethically and legitimately include business entertainment expenses as deductible tax items.

PREPARATION OR REVIEW OF PUBLISHED MATERIAL

The opportunity to work with the Editor and staff of THE JOURNAL, the specialty journals, and *Today's Health* in preparing special articles, book reviews, and editorials has been welcomed. Assistance has also been provided in reviewing material submitted from other sources that might have legal implications.

With the cooperation of the Editor of THE JOURNAL, a new section entitled Medicine and the Law has been added to the Organization Section of THE JOURNAL. The first article was published on Jan. 1, 1955. From that date until the closing date of this report, 13 items on a variety of medicolegal subjects have appeared. The following list indicates the subjects discussed and the dates of publication:

Income tax article—Business Expense Deductions, Jan. 22, 1955.

Income tax article—Entertainment Expenses, Jan. 29, 1955.

Income tax article—Principal New Provisions of the 1954 Code Affecting Physicians, Feb. 12, 1955.

Income tax article—Tax Aspects of a Medical Partnership, April 2, 1955.

Physicians in Group Practice Held Taxable as Corporation, Jan. 1, 1955.

Rulings of the Judicial Council, Feb. 26, 1955, May 7, 1955, and June 18, 1955.

Selection of Medical Staff in Governmental Hospitals—A Review of the case of Albert v. the Board of Trustees of Gogebic County Public Hospital (67 N.W. [2d] 244), April 9, 1955.

A Current Appraisal of the Medicolegal Aspects of Artificial Insemination, April 30, 1955.

Tax Deductions of Professional Entertainment Expenses, June 18, 1955.

Blood Transfusion—Sale or Service, Aug. 20, 1955.

Hospital Staff Privileges Contingent Upon Membership in County Medical Society, July 23, 1955.

The first four articles have been reproduced in pamphlet form in response to a large number of requests. Since the publication of the last article in this series, approximately 5,000 of these pamphlets have been distributed, primarily to individual physicians. Large numbers of reprints of the other articles have also been distributed.

MAJOR PROJECTS OF MEDICOLEGAL SIGNIFICANCE

Medicolegal Education.—At the request of the Council on Medical Education and Hospitals, members of the staff of the Law Department assisted actively in the formulation of plans for a half-day session in connection with the Annual Congress on Medical Education and Licensure. Two of the members of the staff participated as speakers in a Symposium on Legal Medicine in Undergraduate Medical Education on Feb. 5, 1955.

Establishment of Independent Commissions and Foundations.—The Department has participated in the establishment of new and independent corporate entities involving fields in which the Association has found it desirable to participate jointly with other organizations having comparable interests. For example, programs were outlined and assistance given to outside legal counsel in connection with the establishment of a Joint Commission on Mental Illness and Health and the Blood Foundation.

Study Regarding Medical Expert Testimony.—An increasing number of inquiries have been received from state and county medical societies relative to the establishment of panels of experts to provide medical testimony in personal injury cases and in suits involving professional liability. In an effort to be of assistance in this matter, the Department has conducted a survey to determine which states have such programs in operation. As a result of these inquiries, the Department has been able to assemble the experiences of the states, counties, and cities in which the medical societies and bar associations have worked jointly in this field of endeavor. Although only relatively few areas have engaged in this activity, it is apparent from the correspondence that there is an increasing interest in the establishment of committees to review medical testimony or to establish procedures whereby unbiased expert medical testimony will be available to the courts.

Medicolegal Film Project.—On two occasions during the period covered by this report, representatives of the Law Department met with persons from the American Bar Association, the American Law Student Conference, the Junior Bar Conference, the Association of American Law Schools, the Association of American Medical Colleges, the Student American Medical Association, and the American Academy of Forensic Sciences to discuss the desirability of a joint effort in the production of medicolegal films. It was unanimously agreed by those in attendance that educational films dealing with medicolegal subjects would be of great advantage to practicing physicians and attorneys as well as to medical and legal students. Inquiries are being made at the present time by the aforementioned groups as to whether any of the leading educational foundations are interested in financing a project of this type. It is contemplated that if this program is started, three or four films of 15 to 30 minutes in length should be prepared dealing with such subjects as the doctor as a medical expert witness, medical science in the administration of justice, professional liability, and the role of the physician and the attorney in preparing a case for trial.

Termination of Seal-Acceptance Programs

As a result of a determination by the Board of Trustees and the House of Delegates, the Seal-Acceptance Programs of the scientific councils of the Association were terminated during the past six months. Since that time, each of the councils and committees involved have adopted activities that will be of greater benefit to the medical profession and to the public. In making this transition, it has been necessary for the Law Department to work in close cooperation with all of the scientific councils and committees. Three of the members of the staff of the Department have spent a considerable amount of time in assisting in the formulation of letters of notification to individuals and firms that had previously dealt with the councils under the old program. These members of our staff also assisted in the preparation of statements outlining the new scientific programs.

Study of Professional Liability

In cooperation with the Council on Medical Service, the Law Department, at the request of the Board of Trustees and the House of Delegates, has initiated an extensive survey dealing with professional liability. Within the past several months, a questionnaire was sent to each state insurance commissioner to determine the names of the companies writing professional liability insurance and to ascertain by state the statutes and regulations that affect this type of coverage. In addition, an extensive questionnaire has been prepared and distributed to all of the state medical societies to ascertain the experience that each society has had with group professional liability insurance coverage and claims prevention programs. Personal visits have been made by members of the staff, and other visits will follow, to certain of the state societies that have been most active in this field. It is intended to obtain complete information as to pertinent activities currently being engaged in by medical societies. It will then be possible to analyze, evaluate, and compare existing claims prevention programs, procedures for handling complaints prior to litigation, and the results of professional liability litigation by states. As a later phase of the study, it probably will be necessary, through personal visits and correspondence with insurance companies that formerly wrote and with those who are currently writing this type of coverage, to determine in detail and by geographical areas their experience for the past 5 or 10 years. Information relative to rate increases and variations, the reasons for such changes, differences in claims settlement policies, and the existence of claims prevention programs, as well as the opinion of insurance officials as to future trends and desirable corrective measures, should all be obtained in this stage of the study.

An interim report will be submitted to the Board of Trustees in December. The Department anticipates that another year will be required to prepare the final report, which will clearly indicate the exact, current, national picture concerning the causes of professional liability claims and the availability and the cost of professional liability insurance. More important, it is believed that this data will make it possible to determine the causes for the present situation and why the problem is aggravated in certain areas. It is hoped to formulate, thereafter, a long-range educational program for presentation to both medical and legal professions.

Medical and Legal Relations

The Department has continued, by correspondence and participation, to promote periodic joint meetings between physicians and lawyers at which subjects of mutual interest and concern may be explored. It is apparent that there is a trend toward more frequent meetings of this type. It is believed that this is a healthy development that should be encouraged by national, state, and local medical and legal organizations.

As indicated earlier, members of the staff of the Department have participated actively as speakers in a number of joint meetings of the legal and medical profession. The Law Department, in cooperation with the Committee on Medicolegal Problems, will sponsor three regional medicolegal symposiums on Oct. 9, 16 and 30, 1955, at Chicago, Omaha, and New York City respectively. The response to these meetings has been very gratifying. It is anticipated that over 300 physicians and attorneys will attend each session. Subjects to be covered will be of interest to doctors and lawyers and will include a discussion of recent revisions in the Internal Revenue Code, traumatic neuroses, medical science in the administration of criminal justice, medical expert testimony, trauma and disease, and professional liability. It is hoped that medicolegal meetings of this type can be sponsored annually in the future in cooperation with the American Bar Association. Such joint meetings can be effective in reducing areas of misunderstanding that exist between the medical and legal profession and can do much to assure the proper administration of justice in medicolegal cases.

Medicolegal Abstracts

The Law Department has continued the work of the former Bureau of Legal Medicine and Legislation in preparing abstracts of court decisions in the medicolegal field for publication in The Journal. The fifth volume of abstracts of medicolegal cases containing the abstracts published in The Journal from 1947 to 1952 was published in March of this year. References to a few of the cases abstracted and published during the period of this report are given below.

The Supreme Court of California affirmed a judgment finding that a patient had suffered a partial dislocation of the fourth cervical vertebra as a result of a chiropractic manipulation (*Duprey* v. *Shane,* 249 P. [2d] 8.) The Superior Court of New Jersey, appellate division, held that mere possession of a license to practice medicine, without more, does not render the holder competent to testify in a malpractice case as an expert witness (*Carbone* v. *Warburton,* 91 A. (2d) 518). The Municipal Court of the City of New York, Borough of Manhattan, held that a hospital was entitled to sue an ambulance patient treated in its ward for the fair and reasonable value of surgical services furnished such patient by staff physicians (*Beckman Downtown Hospital* v. *Murphy,* 116 N.Y.S. [2d] 341). The United States Court of Appeals, 10th circuit, held that the federal government is liable under the Tort Claims Act for negligent treatment received by the wife of an enlisted member of the Armed Forces, and a veteran in her own right, while in an Army Hospital (*United States* v. *Gray,* 199 F. [2d] 239).

The Court of Appeals of Kentucky held that, in order for an emergency to negate the necessity for a physician to obtain a consent to an operation, the situation must present a serious condition of immediate peril to the patient's life and health of such a nature that it would be dangerous to wait to obtain the patient's consent (*Labor* v. *Scobee,* 254 S.W. [2d] 474). The Supreme Court of Florida held that a private hospital, even though affected with a public interest, does not become a public corporation just because public funds, amounting to no more than 1% of the hospital's funds, had been contributed to it. The managing authorities still had the sole right to determine who could use its facilities (*West Coast Hospital Association* v. *Hoare,* 64 So. [2d] 293). The Supreme Court of Minnesota laid down the rule relating to the use of medical textbooks in evidence. It held that they could not be admitted as substantive proof of the statements made but that a textbook could be used to discredit the testimony of a witness if the witness stated that he based his opinion, or part of it, on such book or if he stated that such book was accepted as authoritative (*Briggs* v. *Chicago Great Western Railroad Company,* 57 N.W. [2d] 572).

The Supreme Court of Arkansas, in a case involving the leaving of a steel suture in a patient's abdomen after an operation, held that the statute of limitations would not run during any period that a cause of action has been fraudulently concealed by a defendant. Such fraudulent concealment exists when a surgeon fails to use reasonable diligence in discovering the cause of a patient's postoperative pains (*Crassett Health Center* v. *Croswell,* 256 S.W. [2d] 548). The Supreme Court of Iowa limited the occasions on which disinterment may be ordered to those in which the facts show that there is a reasonable likelihood that an autopsy will reveal the cause of death (In re Disinterment of Body of Jarvis, 58 N.W. [2d] 24). The Court of Appeals of New York affirmed disciplinary action against three physicians who had been found, by a federal court, to be in contempt of Congress for ignoring a Congressional subpoena (*Barsky* v. *Board of Regents of University of New York,* 111 N.E. [2d] 222). The Supreme Court of Arizona held that it was a reasonable search and seizure if the force used by officers giving a drunkometer test was only that necessary to enable the officers to capture the defendant's breath after it left his mouth (*State* v. *Berg,* 259 P. [2d] 261). The Supreme Court of Washington overruled prior decisions in that state that had granted immunity to charitable institutions for the negligent acts of its servants committed in the course of rendering services consistent with the charitable purposes of the institution (*Pierce* v. *Yakima Valley Memorial Hospital Association,* 260 P. [2d] 765). The Supreme Court of Idaho held that a naturopath who practices surgery and x-ray diagnosis and who administers antibiotics must be licensed under the medical practice act (*Smith* v. *State Board of Medicine,* 259 P. [2d] 1033). The Supreme Court of California held that the doctrine of *res ipsa loquitur* did not apply to electroshock therapy, because the evidence showed that injuries occur during such therapy even in the complete absence of any negligence (*Farber* v. *Olkan,* 254 P. [2d] 520). The Supreme Court of Appeals of West Virginia held that osteopaths can practice surgery and administer drugs (*Vest* v. *Cobb,* 76 S.W. [2d] 885). The St. Louis Court of Appeals, Missouri, held that osteopaths may practice osteopathy in county hospitals (*Stribling* v. *Jolley,* 253 S.W. [2d] 519).

MODEL POSTMORTEM EXAMINATIONS ACT

In collaboration with the Committee on Medicolegal Problems, the Law Department has worked actively in support of the Model Postmortem Examinations Act, which was drafted and approved by the National Conference of Commissioners on Uniform State Laws. A panel of 12 physicians specially trained in this field was appointed for the purpose of discussing problems relating to the coroner-medical examiner system at medical society meetings. The executive secretaries of the state medical societies were advised of the availability of these speakers in connection with plans for their future state programs.

STATE MEDICAL LEGISLATION

As a result of an opinion survey conducted among the executive secretaries of the state medical societies, it was decided to discontinue the publication of abstracts of bills introduced in state legislatures. Replies received from state medical societies indicated that the efforts of the Association in this regard duplicated the work of the state medical societies and were of no substantial value. The Department has, however, continued to maintain background information and files outlining the experiences of the state societies in certain fields for the benefit of constituent or component medical societies confronted with particular legislative problems.

LITIGATION INVOLVING THE ASSOCIATION

The members of the staff of the Department have worked in close cooperation with the general counsel for the Association in connection with two cases currently pending in which the Association is involved. Assistance has been rendered in the assembling of background information, the taking of depositions, and in other ways in the preparation of these cases for trial.

CONCLUSION

The Department wishes to express its appreciation for the cooperation and assistance it has received from the Board of Trustees and the officers of the Association, from the state and county medical societies, and from allied professional organizations and agencies with which it has worked during the period covered by this report.

Report of Committee on Medicolegal Problems

This report of the Committee on Medicolegal Problems covers the period from Sept. 15, 1954, to June 30, 1955. During that time, the Committee had two meetings at which reports were received from the following subcommittees: Professional Liability, Courses in Medical Jurisprudence, Chemical Tests for Intoxication, Medicolegal Aspects of Blood Transfusions, Blood Grouping Tests, Forensic Pathology, and Forensic Psychiatry.

In cooperation with the Law Department and the Council on Medical Service, the Subcommittee on Professional Liability initiated a comprehensive survey to determine the manner in which professional liability insurance is made available to physicians in the various states, the extent and form of prevention programs, and the trends in liability claims and insurance rates. Information has been received from the state insurance commissioners and has been requested from the state medical societies. Personal contacts will be made by the staff during the next year with selected state medical societies and numerous insurance companies. An interim report on this subject will be submitted to the Board of Trustees in December. It is anticipated that another year will be required to complete the survey and prepare a final report. Ultimately, it is planned to publicize complete information and to formulate a suggested long-range prevention program for the use and guidance of state and county medical societies.

The Subcommittee on Courses in Medical Jurisprudence assisted the Council on Medical Education and Hospitals in planning and presenting a half-day session in connection with the Annual Congress on Medical Education and Licensure. The chairman of this subcommittee, Dr. Louis J. Regan, and the chairman of the full Committee, Dr. Alan R. Moritz, both appeared on the program as speakers at a Symposium on Legal Medicine in Undergraduate Education on Feb. 7.

On April 30, 1955, the Subcommittee on Chemical Tests for Intoxication held a meeting at American Medical Association headquarters, to which outstanding experts in this field were invited. At that time, final plans were made for the preparation of a manual to be used as an authentic means of explaining and interpreting tests for intoxication. The form, size, and outline of the manual were agreed upon, and writing assignments for the various chapters were made. Some chapters have already been submitted and are being edited. The following topics are some of the subjects that will be covered in the manual: importance of intoxication tests; statistics—alcohol and accidents; physiology and pharmacology; interpretation of tests; methods of testing; and medicolegal aspects—court cases, self-incrimination, model legislation, and expert testimony in court.

The Subcommittee on Blood Grouping Tests has followed closely and reported for publication in THE JOURNAL several important recent legal decisions in this field. In addition, the subcommittee has prepared a draft of a supplementary report on the Medicolegal Aspects of Blood Grouping Tests. This material is now being reviewed by the full Committee prior to publication.

MEDICOLEGAL FILM PROJECT

On two occasions meetings were held with representatives from the American Bar Association, the American Law Student Conference, the Junior Bar Conference, the Association of American Law Schools, the Association of American Medical Colleges, the Student American Medical Association, and the American Academy of Forensic Sciences to discuss the desirability of a joint effort in the production of medicolegal films. It was agreed by all of the representatives of these organizations that educational films dealing with medicolegal subjects would be of assistance in training medical and legal students and in postgraduate work for practicing physicians and attorneys. Efforts are now being made to ascertain the best method of financing the production of three or four films dealing with such subjects as the doctor as an expert witness, medical science in the administration of justice, professional liability, and the role of the physician and the attorney in preparing a case for trial.

CORONER-MEDICAL EXAMINER SYSTEM

The Committee has worked actively in support of the model postmortem examinations act drafted and approved by the National Conference of Commissioners on Uniform State Laws. A panel of 12 physicians were selected by the Committee for the purpose of discussing problems relating to the coroner-medical examiner system at medical society meetings. The executive secretaries of the state medical associations have been advised of the availability of these speakers in connection with their future state programs.

SESSION ON LEGAL MEDICINE

The Committee again sponsored and directed a Session on Legal Medicine during the Annual Meeting in Atlantic City in June. The Session, which was held on June 8, included a discussion of the following subjects:

The Mentally Ill Patient: Competence to Consent to Treatment, Contract, Testify, and Make a Valid Will.
Trauma and Cancer.
The Federal Income Tax Law in Relation to Medical Practice.
The Model Post-Mortem Examinations Act.
Human Experimentation: Medicolegal Aspects.
Chinese Immigration and Blood Tests.

MEDICOLEGAL SYMPOSIUMS

Plans have also been completed for three medicolegal symposiums, which will be held this fall in cooperation with the Law Department. These meetings will be held in Chicago, Omaha, and New York City on Oct. 9, 16, and 30 respectively. Advance registrations have already been received from approximately 300 physicians and attorneys for each of these conferences, which will cover subjects of interest to practicing members of both professions. Included on the program will be a discussion of recent revisions in the internal revenue code, traumatic neurosis, medical science in the administration of justice, medical expert testimony, trauma and disease, and professional liability.

DISTRIBUTION OF PAMPHLETS

During the year, the Committee continued the distribution of several leaflets and pamphlets previously prepared by its various subcommittees. During this period, 8,500 copies of a leaflet entitled "Test Your A.Q. (Alcohol Quotient)—Twenty Questions on Alcohol" were distributed. The Committee also continued its cooperative arrangement with the medical schools and distributed 3,500 copies of the pamphlet entitled "Malpractice and the Physician" to graduating medical students. In addition, 800 copies of this pamphlet were distributed to individual physicians on request. Four hundred fifty requests were filled for the pamphlets "Medicolegal Aspects of Blood Transfusion" and "Medicolegal Application of Blood Grouping Tests."

EXHIBITS ON PROFESSIONAL LIABILITY AND INTOXICATION TESTS

The Committee assisted the Bureau of Exhibits in preparing a revised exhibit on professional liability and accompanied it on five occasions at various state and county medical meetings throughout the country. In addition, assistance in showing and explaining the exhibit on chemical tests for intoxication was also provided. This exhibit was shown on 29 occasions.

CONCLUSION

The chairman, members, and staff of the Committee would like to express their appreciation to the Board of Trustees, officers, and members of the House of Delegates for the cooperation and consideration that has been received in carrying out the assignments of the Committee.

Report of Council on Pharmacy and Chemistry

This report covers the activities of the Council during the period from Sept. 1, 1954, to June 30, 1955. The most noteworthy event during this period was the termination of the seal-acceptance program on Feb. 15, 1955. The old program was replaced by a new program of drug evaluation designed to provide a better service to the medical profession.

New drugs have continued to appear on the market at an increasingly rapid rate. Many of these new drugs are extremely useful but not infrequently are capable also of doing more harm than good if administered without due appreciation of their hazards or observance of necessary precautionary measures. The average physician has neither the time nor the facilities to experiment with these new drugs in order to determine their proper indications for use, dosage, possible hazards, and contraindications. He must rely on authoritative sources for this information. The greatest interest in a new drug usually occurs at about the time it is introduced on the market for general use. Newspapers and other lay publications often carry enthusiastic reports on these new therapeutic agents that arouse the interest and hopes of the general public. Sometimes this creates a somewhat embarrassing situation for the physician, who has the difficult task of determining whether or not the administration of a new drug is in the best interests of the individual patient. A calculated risk is involved with the use of drugs that have pharmacological effects of any real significance, and the physician may not share the patient's enthusiasm for trial use of a new and potent drug that has received considerable acclaim in lay publications but little or no mention in scientific medical journals. The primary objective of the new program of operation of the Council is to publish concise, authoritative, opinion reports on new therapeutic agents at the earliest possible opportunity. These reports are based on an evaluation of available pharmacological and clinical evidence.

The old seal-acceptance program of the Council often was too cumbersome and time consuming to permit prompt reports for the information of the medical profession. From Sept. 1, 1954, to Feb. 15, 1955, only 10 new drugs received consideration by the Council. Under the new program of operation 27 new drugs were evaluated in the period from Feb. 15, 1955, to June 30, 1955. In addition, eight additional uses of new drugs, which provide the basis for supplementary reports, were evaluated during this latter period. There is still a backlog of new drugs that have not yet been evaluated by the Council. However, it seems evident that the new program of operation already has proved quite superior to the old one in that it is rendering a more timely and better service to the medical profession. The cooperation of the pharmaceutical industry in getting the new program of drug evaluation under way is most deeply appreciated.

The problem of selecting suitable nonprotected names for new drugs has become increasingly difficult. Many drug firms approach the Council regarding the acceptability of proposed nomenclature for new drugs well in advance of the anticipated time of marketing. Cooperation of this type has often obviated needless changes in labeling or delay in publication of evaluation reports. The Council has come to depend to an increasing extent on consultants in various specialties for advice or assistance in resolving many questions relating to the propriety of new claims for medicinal agents. The valuable services of these consultants has often made it possible for the Council to keep pace with the rapid advances being made in therapeutics and to expedite the drug evaluation procedure.

The regular activities of the Council, including such matters as the evaluation of new drugs and adoption of reports for publication, continue to be conducted through the medium of a biweekly confidential bulletin. However, the annual meeting of the Council provides an opportunity to discuss or review important problems relating to drug therapy, to consider modification or extension of activities and procedures, and to deliberate over the reports received from the various standing committees. Most of the correspondence received in the Council office deals with matters relating to the drug evaluation program and the various publications issued or sponsored by the Council. In addition, several thousand inquiries from practicing physicians pertaining to drugs and therapeutics are answered by the Council office each year. Requests for information relating to particular drugs or therapeutic procedures are also received from numerous lay and professional groups or organizations.

Every effort is made to provide full cooperation with other groups or organizations on matters of mutual interest. Information is regularly exchanged between the Council office and the revision committees of the United States Pharmacopeia and the National Formulary, the Federal Food and Drug Administration, and the United States Public Health Service. Information relating to nomenclature as well as to tests and standards for new drugs is also exchanged with groups or agencies in foreign countries. The program of cooperation with the revision committee of the International Pharmacopeia on the matter of selecting nonprotected names for new drugs has been continued. The Council office is frequently requested by other bureaus or departments at Association headquarters to furnish advice or assistance in matters involving drugs or therapeutics with which they are concerned.

The 1955 edition of New and Nonofficial Remedies, an annual publication of the Council, was ready for distribution in June of this year. Monographs for 41 new drugs were added to the 1955 edition; monographs for 22 drugs were omitted, because these agents were considered sufficiently well known. The 1955 volume will be the last edition of New and Nonofficial Remedies in which descriptions of individual brands and dosage forms appear; this is because of the discontinuance of the acceptance program. However, in other respects, the appearance and content of the book will be altered only slightly. Work on another Council publication, the Epitome of the U. S. P. and N. F., is in progress. This new edition, the 10th, has been designed to supplement New and Nonofficial Remedies even more than in the past because monographs on useful drugs that are no longer in New and Nonofficial Remedies will be somewhat more detailed.

During the past year the Council has authorized publication in The Journal of reports on the following subjects: multiple dose containers for water for injection, U. S. P., and isotonic sodium chloride solution, U. S. P.; new generic and brand names recognized by the Council; misuse of edathamil calcium-disodium for prophylaxis of lead poisoning (a joint report with the Council on Industrial Health); overtreatment dermatitis; spermicidal activity of commercial contraceptive preparations; and drugs intended to alter subjective responses.

Report of Committee on Pesticides

This is the sixth annual report of the Committee on Pesticides. During the past year the following activities were engaged in by the Committee in furtherance of its study program on the health hazards of pesticides.

Educational Activities.—The series of Committee reports reviewing medical and public health aspects of pesticidal chemicals has been extended to 15 with the publication in The Journal of a statement on Abuse of Insecticide Fumigating Devices, and Outlines of Information (Part 1) Agricultural Fungicides. The latter report is the first in a series of outlines of information on pesticides that are to be offered as aids in teaching. The next statement in this series, entitled Outlines of Information (Part 2) Insecticides, has been adopted and is presently waiting publication. Two additional reports, entitled The Present Status of Chlordane and Fatal Chlordane Poisoning, are also awaiting publication. A fifth unpublished report reviewing new developments with pesticides is presently under consideration.

Investigative and Research Projects.—The Committee's willingness to provide information and to arrange for studies of pharmacologically interesting pesticide compounds was reemphasized at the annual meeting of the American Society for Pharmacology and Experimental Therapeutics in April. Several requests for further information on the Committee's role in the arrangement of studies on pesticidal compounds have since been received.

Annual Meeting.—The Committee held its annual meeting on March 2, 1955, at the headquarters of the American Medical Association. Current problems affecting the use of agricultural chemicals and pesticides used in the home were discussed. Certain of the more important topics considered and actions taken thereon by the Committee are set forth below.

Protection of animals as well as plants against insects by means of chemicals that are absorbed and translocated throughout the plant or animal making the host toxic or repellent to attacking pests was emphasized as a pesticide development of growing importance. The propriety of using systemic insect repellents to protect humans against mosquito attacks and of using insecticides in saltlicks to protect animals against insects was questioned by the Committee. It was agreed that a safe and effective method of internal protection against biting and other annoying insects has not been satisfactorily developed.

Although two organic phosphorus compounds are now commercially available as systemic plant protectants, toxicology consideration precludes their use for food crops or forage crops for livestock. It was concluded that, while systemic insecticides offer a new approach, there appears to be no prospect that general control of insects will be practical or widespread in the near future.

Use of insecticides in quarantine was reviewed. The present inflight methods for eradicating insects were considered to be completely inadequate, because no insecticide can be applied in large enough quantity without being hazardous to the occupants of the plane. It was felt that sanitation in and around international airports should be improved in order to maintain successful quarantine.

New chemicals for fly control were discussed in relation to the growing problem of insecticide resistance. Many insect vectors of disease have become resistant to the chlorinated hydrocarbon insecticides. In some areas, this resistance is sufficient to interfere with the control of malaria and other vector borne diseases. The most promising substitutes for the chlorinated hydrocarbons are the organic phosphorus compounds. Concern was expressed, however, over the hazards of repeated exposure to formulations of organic phosphorus compounds.

Service Activities.—The Committee on Pesticides collaborated with other groups and organizations during the past year on problems of mutual concern. It continues to serve as an advisory group to the Interdepartmental Committee on Pest Control. Through the Secretary it also maintained its representation on the Sectional Committee on Common Names for Pesticides of the American Standards Association and on the Liaison Panel of Food Protection Committee of the National Research Council. In conjunction with the Committee on Toxicology, the Committee on Pesticides is sponsoring a symposium on hazardous agricultural poisons and household chemicals at the national meeting of the American Association for the Advancement of Science.

During the past year the Committee was asked by private agencies to consider and render opinion on a variety of medicoeconomic problems involving the hazardous potentialities of pesticides. The Committee exhibit, Accidental Poisoning in Children, and radio transcription, Guarding Against Poisoning, continued to be shown to lay and medical audiences.

Committee on Toxicology

This is the initial report of the Committee on Toxicology. The Committee was established in January, 1955, as a standing committee of the Council on Pharmacy and Chemistry. It has been organized for the express purpose of studying means for decreasing the risks of accidental poisoning. The health problems of detergents; solvents; paint products; art and hobby supplies; cleaning, polishing, and sanitizing agents; caustic and corrosive compounds; and other chemical products employed in and around the home are studied. Toxicity problems involving drugs, cosmetics, and pesticides are considered jointly with American Medical Association groups having programs in these fields.

The Committee is composed of a distinguished group of pediatricians, pharmacologists, and regulatory officials. They advise the Committee's headquarters staff in the administration of a five point study program to (1) promote informative labeling and safe packaging, (2) encourage laboratory and clinical research for antidotes, (3) standardize technical nomenclature, (4) develop criteria for evaluating hazardous substances, and (5) sponsor a sustained educational program. Several basic steps have already been undertaken, including a survey of trade names and composition of widely used chemical products, expansion of its medical registry of poisoning cases, and sponsorship of a

Conference on Health Problems of Household Chemicals attended by representatives of government, industry, and medicine.

The Committee makes its findings available to physicians and the public through the medium of status reports and editorials, exhibits, radio transcriptions, and an inquiry service. Two status reports, entitled Candy Medication and Accidental Poisoning and Precautions Regarding Salicylates, Including Aspirin, and several editorials have been published in THE JOURNAL. The Committee, in collaboration with the Committee on Pesticides, is making arrangements for a symposium on the health hazards of chemical products at the Atlanta meeting of the American Association for the Advancement of Science.

The program of the Committee on Toxicology is intended primarily to offer guidance and to stimulate awareness in physicians and consumers of the health hazards attending careless or injudicious use of chemical products. It is believed that this program will produce an improved public attitude toward these materials.

COMMITTEE ON RESEARCH

The Committee on Research has moved forward in consolidating its operations during the past year. A great deal of effort has been put into the clarification of its various functions and into the strengthening of the organization of the Committee as a whole. The possible expansion of the activities of the Committee on Research to provide grants-in-aid for educational purposes has been proposed and is now receiving consideration.

The Committee has given some thought to the matter of sponsoring the presentation of basic medical science reviews in THE JOURNAL. Such reviews would call to the attention of physicians important advances in the basic preclinical disciplines. The Committee would also solicit original articles in different fields of research from distinguished investigators. Such manuscripts would be screened by the Committee's editorial group, and the material selected would be transmitted to the Editor of THE JOURNAL. The Committee would also sponsor the extension of a feature similar to the Clinical Pathological Conference and the Therapeutic Conference. It is hoped that these proposals will enhance the value of THE JOURNAL as a medium for additional postgraduate training and continuation study for physicians.

COOPERATIVE INVESTIGATION

As in the past, the Committee on Research is continuing its activities in the field of cooperative investigation. The basic principle on which this type of enterprise was initiated is still applicable. A concerted effort is made to assemble information from investigators in a field in which no one investigator has a group of cases sufficiently large to yield statistically valid data. This approach permits the Committee to accumulate these data, to evaluate them, and to publish the results as a study if found to be valid and of statistical significance. When a cooperative investigation of this sort is undertaken, a group of experts in the particular field are brought together to consider the matter. These symposiums have established criteria of admissibility of cases to the study and specific schedules of treatment to be followed by the investigators in the clinics. All of the drugs administered in such studies have been donated by pharmaceutical manufacturers. Funds for the cost of administration of these programs are furnished by the American Medical Association. The individual investigator receives no compensation for his service, but this does not preclude his requesting funds for the study from the Subcommittee on Grants-in-Aid of the Committee on Research or from an outside agency. A report is prepared by the group involved in the study, which is reviewed by the sponsoring subcommittee and the Committee on Research. If the report is found worthy of publication, it is transmitted to the Council on Pharmacy and Chemistry with a recommendation that it be published in THE JOURNAL.

Steroids and Hormones in Mammary Cancer.—The study group on cancer met in the spring to review the progress made in the study of mammary cancer. It was agreed that, because of the length of time this study has consumed, it should be terminated on June 30, 1956. The study group completed arrangements for the collection of data on cases of mammary cancer treated by adrenalectomy or hypophysectomy. It is hoped that through this means the study group will be able to assemble data on several hundred cases of mammary cancer in which adrenalectomy was done.

Pregnancy Complicated by Diabetes Mellitus.—A group of investigators will study the influence of hormones on pregnancy complicated by diabetes mellitus. The study has just begun, with 10 clinics observing the effects of the hormones and another 10 clinics acting as controls. In addition to information concerning the diabetic mother, the investigators will submit information about the delivery, the newborn child, and the placental tissue. It is anticipated that this study will run for two years and that the data collected by the Committee will form the basis of a report that will be published in THE JOURNAL.

Hypertension and Hypotensive Agents.—A conference was held to consider the problem of hypertension and hypertensive agents. A group of investigators were assembled, and an organization was formed with a cardiologist as chairman. The group directed one of its members to prepare a statement of classification of hypertension. When this classification has been prepared, consideration will be given to the matter of evaluating hypotensive agents. A suitable form for the reporting of such data will be developed when the group reaches the decision to go forward with the investigation in collaborating clinics.

Registry of Blood Dyscrasias.—The subcommittee on registry of blood dyscrasias has been functioning for a relatively brief period, and the 70 clinics collaborating in the study have been most cooperative. The subcommittee has considered a number of problems and assembled some information on four new drugs. No formal report has been prepared since the work has not been completed; however, this information was circulated among the investigators to acquaint them with the findings. During the year, the Committee received a number of reports of adverse reactions from one drug. The secretary met with representatives of the manufacturer, and a plan of cooperation was worked out. The firm is now submitting reports to the Committee of all adverse reactions brought to its attention concerning their product. A proposed statement has been prepared by the Subcommittee on Blood Dyscrasias dealing with the toxic potential of the drug and the need for adequate warnings. As soon as this proposed statement has been approved, it will be incorporated in a monograph report and published in THE JOURNAL.

Conference on Adverse Reactions.—A new investigating group is being considered as the result of a recommendation made at the 1954 annual meeting of the Council on Pharmacy and Chemistry. The Committee on Research is in the process of bringing together a group of experts in a number of fields of medicine with a view toward the possible development of a subcommittee on adverse reactions, whose function will be to formalize a registry and to develop a report form applicable to such an operation. The outcome of this meeting will be reported next year.

EDUCATIONAL AND INFORMATIONAL PROJECTS

During the past year the Committee on Research has sponsored a number of informational projects. A report on Therapeutic Alterations of Steroid Metabolism in Advanced Mammary Cancer was published in THE JOURNAL, Dec. 25, 1954. In 1952, a questionnaire dealing with the research activities of physicians was sent to 11,340 medical men throughout the country, and in 1954 a similar questionnaire was submitted to 773 Illinois physicians. At the present time, the results of these surveys are being compared, and it is anticipated that a report will be ready for publication shortly.

GRANTS-IN-AID

The Subcommittee on Grants-in-Aid undertakes the consideration of requests for funds for research. Funds made available by the American Medical Association are awarded for the investigation of drugs and other agents used in the diagnosis, treatment, and prevention of disease. Funds provided by the William Volker Foundation and administered by the subcommittee under the designation of the William Volker Fund are used in sponsoring research in the basic medical sciences. A record of all grants-in-aid made under the auspices of the former Therapeutic Research

Committee and those made under the auspices of the Subcommittee on Grants-in-Aid is on file in the Committee office, where it is available for review.

The Subcommittee on Grants-in-Aid of the Committee on Research has approved the following grants since Jan. 1, 1955:

Grant 140, $500 to Dr. Herman C. B. Denber, Manhattan State Hospital, for studies on Mescaline: Its action on the clinical and brain wave patterns of epileptic patients.

Grant 142, $500 to Dr. Milton Huppert, University of North Carolina, to study the effect of preparations of fatty acids and parabens against *Candida albicans*.

Grant 143, $500 to Dr. Bruce W. Halstead, College of Medical Evangelists, for investigation on the physiological effects of ichthyosarcotoxins.

Grant 144, $1,000 to Dr. Irving Young, Wayne University, for the evaluation, development, and applications of paper electrophoresis in clinical problems.

Grant 145, $500 to Dr. Roland H. Alden, University of Tennessee Medical Units, to study the preparation, yield, and biological activity of estrogen sensitized collodian particles.

Grant 146, $492 to Dr. Richard S. Webb Jr., University of Illinois, to study the role of biliary-intestinal reflux in the production of infection and stricture at the site of choledochoduodenostomy.

Grant 147, $300 to Dr. Jay A. Smith, the Chicago Medical School, to study the bronchoconstrictor effects of thiamine.

Grant 148, $500 to Dr. William John Griffiths Jr., the University of Mississippi, to study the psychobiological differences between animals resistant to and susceptible to breakdown under stress.

Grant 149, $400 to Dr. Arne Schairer, Stritch School of Medicine of Loyola University, for the study of canine homologous fascia lata grafts to diaphragmatic defects.

Grant 150, $500 to Dr. Gordon E. Gibbs, University of Nebraska, for the determination of pancreatic function in the newborn infant.

Grant 151, $475 to Dr. William H. Boyce, Wake Forest College, to study proteins and other biocolloids of urine in health and in patients with urinary calculous disease.

Grant 152, $250 to Dr. Robert H. Pudenz, Institute of Medical Research, Huntington Memorial Hospital, to study tumors induced in animals by embedding various plastics.

Grant 153, $500 to Dr. Kurt Lange, New York Medical College, to study the usefulness of experimental nephrotoxic nephritis and nephrosis as a yardstick for specific therapy.

Grant 154, $500 to Dr. John R. Goldsmith, University of Washington, to study the maximum expiratory flow as a pulmonary function test.

Grant 155, $500 to Dr. Victor J. Cabelli, University of Missouri, to study the in vitro and in vivo sensitivity of chromogenic acid-fast organisms to antibiotics and chemotherapeutic agents.

Grant 156, $500 to Dr. Charles M. Carpenter, University of California, for studies on the desensitization of guinea pigs with experimental brucellosis employing various chemical fractions and extracts obtained from Brucella.

Grant 157, $500 to Dr. T. S. Danowski, University of Pittsburgh, for a study of therapy of recurrent nephrotic syndrome.

Grant 158, $350 to Dr. James M. Dille, University of Washington, to study the photofluorometric determination of alkaloid drugs.

Grant 159, $500 to Dr. Charles M. Gruber, College of Medical Evangelists, to study (1) the effects of pharmacological agents and inorganic ions on drug induced cardiac arrhythmias and (2) the effects of apomorphine on the gastrointestinal system.

Grant 160, $500 to Dr. Kenneth F. Lampe, University of Miami, to study the qualitative chemical identification of synthetic analgesics.

Grant 161, $500 to Dr. Don W. Micks, University of Texas, to study the therapeutic effects of a blood derivative, Sanguinin, on the healing of wounds.

Grant 162, $500 to Dr. Terrell C. Myers, University of Illinois, to study the phosphonate analogues of intermediates of glycolysis.

Grant 163, $500 to Dr. Hugh J. Phillips, the Creighton University, to study the separation of urinary gonadotropins.

Grant 164, $500 to Dr. Richard H. Saunders, University of Vermont, to study the alkaline phosphatase content of granulocytes of perpiheral blood in patients with hematological disorders of malignancy.

Grant 165, $500 to Dr. Gordon W. Searle, State University of Iowa, for the study of bile salts; their usefulness for intestinal fat absorption versus their toxic effects.

Grant 166, $500 to Dr. Paul W. Smith, the University of Oklahoma, to study the influence of ethylenediamine tetraacetic acid on calcium ion distribution in digitalis toxicity.

Grant 167, $500 to Dr. Walter F. Watts, Loyola University, to study the effect of different radio-opaque solutions on the fallopian tubes.

Grant 168, $500 to Dr. Clarence Dennis, State University of New York, for the study of cardiovascular surgery.

Grant 169, $250 to Dr. William Havener, Ohio State University, for the evaluation of antrenyl and related drugs as fungistatic agents.

Grant 170, $500 to Dr. L. Rubenstein, Michael Reese Hospital, for the study of a substitute esophagus.

Grant 171, $500 to University of Louisville, for the studies of, (1) cycloserine in experimental tularemia, comparative studies of antibiotics in tularemia, Dr. S. Stephen Chapman; (2) effects of metacortandracin on serum lipids, Dr. B. J. McIntosh; (3) effect of carbon tetrachloride on renal function, Dr. Charles H. Duncan; (4) the transport of radioactive inorganic phosphate by the pulmonary circulation in pulmonary edema, Dr. James C. Moore.

Grant 172, $250 to Dr. Walter C. Hess, Georgetown University, to study the stimulation of liver glycogen production by cortisone, hydrocortisone, and amino acids.

Grant 173, $400 to Dr. Irving G. Pesek, Loyola University, for the study of repair of diaphragmatic defects with polyvinyl sponge in dogs.

Grant 174, $500 to Dr. James F. Bosma, University of Utah, to study the pharmacological modification of hyperkinesis in brain-damaged children.

Grant 175, $500 to Dr. Miriam E. Simpson and Gertrude van Wagenen, University of California, to study the effect of gonadotropins in immature male and female Macaca mulatta.

Grants from the William Volker Fund

William Volker Grant 30, $500 to Dr. Samuel P. Bessman, University of Maryland, to study the mechanism and treatment of hepatic coma.

William Volker Grant 31, $400 to Dr. Eugene D. Brand, the University of Virginia, to study the mechanism of nitrogen mustard-induced emesis. The secondary receptor of the emetic action of nitrogen mustard.

William Volker Grant 32, $500 to Dr. Emma H. Collins, Stritch School of Medicine, Loyola University, to study the diurnal electroencephalogram patterns in races of monkeys; and their alteration with age and hormone therapy.

William Volker Grant 33, $500 to Dr. Benjamin DeBoer, University of North Dakota, to study cell sensitivity to narcotics in short-term tissue cultures.

William Volker Grant 34, $500 to Dr. Nicholas R. DiLuzio, University of Tennessee, to study the role of plasma lipids in arterial degeneration.

William Volker Grant 35, $500 to Dr. F. E. Kelsey, University of South Dakota, for studies on the metabolism of Selenium.

William Volker Grant 36, $500 to Dr. L. O. Krampitz, Western Reserve University, investigation of biosynthesis of pigments found in mycobacterium.

William Volker Grant 37, $500 to Dr. Bernard H. Marks, Ohio State University, investigation of narcosis and coenzyme A in intact animals.

William Volker Grant 38, $500 to Dr. John Ward McKenzie, the Medical College of Georgia, for a histological study of albino rat embryos and fetuses receiving radioisotope P^{32} through maternal circulation.

William Volker Grant 39, $500 to Dr. Gordon R. McKinney, West Virginia University, for a study of the glyoxalase activity in blood.

William Volker Grant 40, $500 to Dr. Ralph Penniall, Baylor University, to study the nature of the uncoupling action of salicylates on brain respiration.

William Volker Grant 41, $500 to Dr. Joseph H. Perlmutt, University of North Carolina, to study the adrenocortical-like steroid content of placentae from patients with normal pregnancy and with toxemia of pregnancy.

William Volker Grant 42, $500 to Dr. Wilhelm Raab, University of Vermont, to study the effect of nicotine and of ganglionic blockers on cardiac neurohormone content and action.

William Volker Grant 43, $500 to Dr. Ira Rosenblum, Albany Medical College, to study a series of acylureas for ability to block induced secretion of antidiuretic hormone (ADH).

William Volker Grant 44, $350 to Dr. Lawrence J. Schroeder, Wayne University, to study the metabolism of squalene by Saccharomyces cerevisiae.

William Volker Grant 45, $500 to Dr. Robert I. Wise, Jefferson Medical College, to study the survival and reversion of G colonies of staphylococci in vivo.

William Volker Grant 46, $500 to Dr. Calvin Hanna, University of Tennessee, for intracellular studies on the development of tachyphylaxis to sympathomimetic amines.

William Volker Grant 47, $400 to Dr. George G. Rose, Hermann Hospital, to study attempts to detect a differential response of cells in vitro to human cancerous and normal sera as the basis for an early diagnostic test for cancer.

William Volker Grant 48, $1,000 to Howard University, for the studies of (1) the relation of cholesterol and ascorbic acid to circulating blood corticoids, Dr. Walter M. Booker; (2) enzyme dissimilation of hydroxyproline, Dr. Felix Friedberg.

William Volker Grant 49, $1,000 to Boston University, for the studies of (1) the disposition of rubidium in the dog, Dr. Earl H. Dearborn; (2) metabolic reactions in erythrocyte ghosts, Dr. Fabian Lionetti; (3) correlation of mechanical, electrical and metabolic properties of cardiac muscle, Dr. William C. Ullrick.

William Volker Grant 50, $500 to University of Louisville, for the studies of (1) cycloserine in experimental tularemia, comparative studies of antibiotics in tularemia, Dr. S. Stephen Chapman; (2) effects of metacortandracin on serum lipids, Dr. Charles H. Duncan; (3) effect of carbon tetrachloride on renal function, B. J. McIntosh; (4) the transport of radioactive inorganic phosphate by the pulmonary circulation in pulmonary edema, Dr. James C. Moore.

William Volker Grant 51, $500 to Dr. William P. Creger, Stanford University, to study the relation of antibodies for human white cells to drug and transfusion administrations.

William Volker Grant 52, $500 to Dr. Alexander P. Remenchik, University of Illinois, to study exchangeable potassium in man in the presence of central nervous system infections.

William Volker Grant 53, $500 to Dr. Charles W. Lloyd, State University of New York, to study the relationship of anterior pituitary adrenal cortical axis and hypothalamico neurohypophyseal tract.

William Volker Grant 54, $500 to Dr. William G. Clark, Los Angeles County Heart Association, to study the neurochemistry of the automatism of the heart. Sum to be entirely used for this project.

William Volker Grant 55, $32 to Dr. E. Charles Kunkle, Duke University, to study painspot densities in human skin in health and disease.

William Volker Grant 56, $920 to Dr. John B. Johnson, Howard University, to study paper electrophoresis of serum proteins and hemoglobin in human subjects.

William Volker Grant 57, $900 to Dr. Helen S. Reardon, Temple University, for the investigation of correlation of chemical and clinical studies in infants of diabetic mothers.

The following list gives the investigations conducted with the assistance of grants made by the Committee on Research, reports of which were published:

Bailey, H. A.; Goth, A., and Lackey, R. W.: Re-Evaluation of Metrazol ® in Experimental Barbiturate Poisoning, Current Res. in Anesth. & Analg. 32: 274 (July-Aug.) 1953.

Barnes, T. C.; Karasic, J., and Amoroso, M. D.: Further Studies of the Rate of Healing of Human Skin Measured by the Electrical Wound Potential of Experimental Abrasions, J. Surg. 82: 720 (Dec.) 1951.

Beutner, E. H.; Hartman, P. E.; Mudd, S., and Hillier, J.: Light and Electron Microscopic Studies of Escherichia Coli-Coliphage Interactions: I. Preparative Method: Comparative Light and Electron Microscopic Cytology of the E. Coli B-T2 System, Biochim. et biophys. acta, 10: 143, 1953.

Boyce, W. H.; Corey, E. L.; Vest, S. A., and French, C. R.: The Correlation of Electromyographic Records with Neurogenic Dysfunction of the Human Urinary Bladder, J. Urol. 70: 605 (Oct.) 1953.

Burno, F.; Burstein, F., and DiPalma, J. R.: Comparison of Antifibrillatory Potency of Certain Antimalarial Drugs with Quinidine and Procaine Amide, Circulation Res. 11: 414 (Sept.) 1954.

Chen, Tze-Tuan: Paramecin 34, A Killer Substance Produced by Paramecium Bursaria, Proc. Soc. Exper. Biol. & Med. 88: 541-543, 1955.

Christensen, J. A.: Mechanism of the Action of Tetraethylthiuram Disulfide in Alcoholism, Quart. J. Stud. Alcohol 12: 30 (March) 1951.

Clewe, T., and Dreisbach, R. H.: Antagonists for Tetraethylpyrophosphate Poisoning, J. Pharmacol. & Exper. Therap. 110: 11 (Jan.) 1954.

Corey, E. L.; Boyce, W. H., and French, C. R.: Electropotential and Pressure Variations in the Normal Human Urinary Bladder, J. Appl. Physiol. 5: 38 (July) 1952.

Corey, E. L., and Vest, S. A.: Electropotential Changes in the Isolated Mammalian Urinary Bladder, Surg. Gynec. & Obst. 98: 91 (Jan.) 1954.

Cort, J. H.: Effect of Nervous Stimulation on the Arterio-Venous Oxygen and Carbon Dioxide Differences Across the Kidney, Nature 171: 784 (May) 1953.

Cort, J. H., and McCance, R. A.: The Renal Response of Puppies to an Acidosis, J. Physiol. 124: 358, 1954.

D'Angelo, G. J.; Reeves, R. J.; Pinck, R. L., and King, J. E.: Venography: A New Technique, Am. J. Roentgenol. 71: 224 (Feb.) 1954.

Di Stefano, H. S.; Bass, A. D.; Diermeier, H. F., and Tepperman, J: Nucleic Acid Patterns in Rat Liver Following Hypophysectomy and Growth Hormone Administration, Endocrinology 51: 386 (Nov.) 1952.

Elkinton, J. R., and Danowski, T. S.: Vivodialysis in the Therapy of Excesses or Deficits, in The Body Fluids: Basic Physiology & Practical Therapeutics, chap. 25.

Ellison, H. S., and Holley, H. L.: Hypokalemia Due to Insufficient Dietary Intake, Am. Pract. & Digest Treat. 4: 6 (Jan.) 1953.

Gatz, A. J., and Houchin, O. B.: Studies on the Heart of Vitamin E Deficient Rabbits, Anat. Rec. 110: 249 (June) 1951.

Goldie, H.; Tarleton, G. J.; Jeffries, B. R., and Hahn, P. F.: Effect of Repeated Doses of External and Internal Irradiation on Structure of the Spleen, Proc. Soc. Exper. Biol. & Med. 82: 395, 1953.

Hayano, M.; Lindberg, M. C.; Wiener, M.; Rosenkrantz, H., and Dorfman, R. I.: Steroid Transformations by Corpus Luteum Tissue, Endocrinology 55: 326 (Sept.) 1954.

Hess, W. C., and Shaffran, I. P.: Influence of Cortisone on Rate of Absorption and Formation of Liver Glycogen by Alanine, Proc. Soc. Exper. Biol. & Med. 86: 287, 1954.

Hess, W. C., and Shaffran, I. P.: Biochemistry: The Influence of Intramuscular and Oral Cortisone and Hydrocortisone on Liver Glycogen Formation by DL Alanine, J. Wash. Acad. Sc. 45: 134 (May) 1955.

Kalman, S. M.: The Effect of Androgens on the Succinoxidase System of Rat Liver, Endocrinology 50: 361 (March) 1952.

Keith, Eaden F., Jr., and De Boer, Benjamin: The Effect of N-Allylnormorphine on Narcotic-Induced Hyperglycemia, Arch. internat. pharmacodyn. 101: 481 (May) 1955.

Keyl, A. C., and Dragstedt, C. A.: Influence of Insulin on Action of Cardiac Glycosides on the Intact Embryonic Chick Heart, J. Pharmacol. & Exper. Therap. 112: 129 (Oct.) 1954.

Lata, G. R., and Anderson, E.: Effect of Prolonged Pantothenic Acid Deprivation Upon Cholesterol Synthesis in the Rat, Arch. of Biochem. 53: 518 (Dec.) 1954.

Lehr, D.: Relative Merits of Commonly Used Sulfonamide Drugs as Components of Mixtures, New York J. Med., June, 1950.

Lehr, D.: Choice of Sulphonamides for Mixture Therapy, Brit. M. J. 2: 601 (Sept.) 1950.

Lehr, D.: Comparative Merits of 3,4-Dimethyl-5-Sulfanilamido-Isoxazole (Gantrisin) and a Sulfapyrimidine Triple Mixture, Antibiotics & Chemother. 3: 71 (Jan.) 1953.

Lehr, D.; Terranova, R.; Blumenfeld, S., and Golfarb, M. L.: Therapy with a New Sulfonamide Triple Mixture: Sulfadiazine-Sulfamerazine-Elkosin, Postgrad. Med. 13: 231 (March) 1953.

Mateer, F. M., and Danowski, T. S.: Changes in Undetermined Acid Following Electrolyte Depletion by Vivodialysis, Fed. Proc. 13: (March) 1954.

Mateer, F. M.; Greenman, L., and Danowski, T. S.: Hemodialysis of the Uremic Child, to be published.

Maxwell, E. L.: Effects of Grafted Testes Upon the Seminal Vesicles of Castrated Fetal Rats.

Mudd, S.; Hillier, J.: Beutner, E. H., and Hartman, P. E.: Light and Electrol Microscopic Studies of Escherichia Coli-Coliphage Interactions: II. The Electrol Microscopic Cytology of the E. Coli B-T2 System, Biochim. et biophys. acta 10: 153, 1953.

Perlman, L., and Milzer, A.: Psittacosis, A. M. A. Arch. Int. Med. 94: 82 (July) 1954.

Rigdon, R. H.; Couch, J. R.; Brashear, D., and Qureshi, R. T.: Effect of Vitamin B12 on Selenium Poisoning in the Rat, A. M. A. Arch. Path. 59: 66 (Jan.) 1955.

Smith, Jay A.; Lind, Allan H., and Ryzoff, Ronald I.: Production of Bronchoconstriction by Thiamine in Guinea Pigs, Fed. Proc. vol. 14, no. 1, March, 1955.

Tarleton, G. J.; Goldie, H.; Jones, A. M., and Moore, G. A.: Radiosensitivity of Free Sarcoma 37 Cells Grown in Peritoneal Exudate of the Mouse in Vivo, Fed. Proc. vol. 12, March, 1953.

Tarleton, G. J.; Goldie, H., Brantley, M., and Simpson, M.: Effect of Fractionated Total Body Irradiation on Sarcoma Cells in the Peritoneal Exudate of the Mouse, Fed. Proc. vol. 13, March, 1954.

Yielding, K. L.; Platt, D., and Holley, H. L.: Synovial Fluid: I. Comparison of Sodium and Potassium Concentrations in Normal and Diseased Joint Fluid, Proc. Soc. Exper. Biol. & Med. 85: 665, 1954.

Report of Chemical Laboratory

The work of the Chemical Laboratory during the last four months of 1954 brought to a conclusion the chemical evaluation of drugs as performed in conjunction with the old seal-acceptance program of the Council on Pharmacy and Chemistry. This evaluation entailed the examination of samples of the active ingredient representative of commercial production and its various dosage forms for purity, identity, quality, and potency. Tolerance limits and specifications were established for all new drugs. These monographs then appeared in THE JOURNAL as a part of the reports of the Council on Pharmacy and Chemistry. During this period tests and standards monographs were established for 17 new drugs and their 23 dosage forms. One hundred twelve drug presentations of all categories were referred to the Chemical Laboratory by the Council and this demanded consideration of about 175 individual drug items.

The Chemical Laboratory cooperates with several departments at Association headquarters. It acts in an advisory capacity to the Council on Pharmacy and Chemistry on matters relating to nomenclature and certain chemical and pharmaceutical considerations of drugs. It cooperates with the Committee on Publications of the Council on Pharmacy and Chemistry in the publication of New and Nonofficial Remedies. Cosmetic preparations were referred to the Laboratory for consideration of the chemistry of various formulations and control procedures. Chemical studies were done on several products at the request of the Committee on Cosmetics, Council on Pharmacy and Chemistry, Council on Foods and Nutrition, Council on Rehabilitation, Bureau of Investigation, and the Editorial Department, and in a few instances analyses were carried out on problems of general medical interest at the request of individual physicians. The Laboratory assists the Library of the Association in classifying chemical and pharmaceutical entries for the Quarterly Cumulative Index Medicus. On request it aids the Editorial Department in regard to chemical statements and nomenclature that appear in articles for JOURNAL publication and the Advertising Committee by examining appliances and reviewing claims of a technical nature in advertising copy.

Since the beginning of the year the Chemical Laboratory has spent considerable time in planning its activities for the future since the termination of the seal-acceptance programs. The work formerly done by the Laboratory will be continued but in a modified form. In the meantime the Laboratory has had opportunity to work on several problems that it was unable to undertake under the old program. The study on cigarettes, cigarette smoke, and filters has been completed and the final paper on its findings was published in THE JOURNAL. A brief description of the action and nomenclature of chelating and sequestering agents was also published in THE JOURNAL. A study of the various salts of piperazine citrate and piperazine tartrate has been completed. A study of methods for determining the amounts of medicament released with time from sustained release medication has been begun. A comparative study of the available antacids with respect to composition and efficiency judged by available chemical tests is in progress. Methods for determining the hexachlorophene content of soaps are still under investigation.

Report of Committee on Cosmetics

This is the sixth annual report of the Committee on Cosmetics. As a result of a Board of Trustees action, the acceptance program and the use of the Committee seal have been discontinued. Committee activities have been revised to bring about a change in emphasis and a broadening of scope. The Committee will, however, through the accumulation, preparation, and dissemination of pertinent information, continue to promote a better understanding of cosmetics and allied preparations among the medical profession and the public. It will further encourage the scientific approach in the formulation and manufacture of cosmetics through proper quality controls and thorough laboratory and clinical investigation of new products.

The Committee has broadened its scope to include the consideration of medical problems where the improvement of appearance or the prevention of disfigurement is a major therapeutic objective. A report to the Committee, entitled Acne Vulgaris, and an accompanying editorial will be published in a forthcoming issue of The Journal. For the purpose of lay education, an article on acne vulgaris will appear in a current issue of *Today's Health* as one of the monthly series on cosmetics, skin care, and appearance that have been published for the past three years.

A tabulation of the number and types of inquiries received by the Committee on Cosmetics since its establishment in 1948 is underway. The purpose of this survey is to determine the kinds of problems that the physician and the public regard as within the sphere of activity of this Committee and it will give some indication of what subjects should be considered in the preparation of future reports of the Committee. Plans are being completed for a series of symposiums on the significance of cosmetics to the physician. The Committee will present the first of this series at the annual meeting of the Association in Chicago. Discussions will include such subjects as depilatories, sun screens, deodorants, and cold waving solutions and their application in medical practice. Members of the cosmetic industry will be invited to attend. A Committee staff member will participate in a forthcoming Committee on Toxicology–sponsored symposium on health hazards of chemicals, which will be presented before the Pharmacy Section at the annual meeting of the American Association for the Advancement of Science in Atlanta, Ga. Toxicologic and dermatological aspects of the various groups of cosmetic chemicals will be reviewed for this meeting.

During the past year, papers were presented by a staff member before the annual meetings of the American Association for the Advancement of Science at Berkeley, Calif., and the American Pharmaceutical Association at Miami Beach, Fla. Career opportunities for women in the cosmetic industry were also discussed before a national meeting of women pharmacists at Purdue University. The Committee was singularly honored this year when Dr. Stephan Rothman, one of its members, received the first $1,000 special award of the Society of Cosmetic Chemists for his book, Physiology and Biochemistry of the Skin. The award was instituted to encourage the publication of outstanding scientific literature in the field of cosmetic technology.

As in other years, the Committee office has continued to serve as an information center and advisory body for groups and individuals whose activities influence the flow of information on cosmetics to the public. Representative of those assisted frequently by the Committee are the allied health professions, better business bureaus, government agencies, writers, radio and television networks, newspapers, and magazines. The Committee is particularly indebted to the many consultants who, during the past year, have so willingly offered and rendered assistance in special problems.

Report of Council on Rehabilitation

This report covers the period from Sept. 1, 1954, through June 30, 1955.

The seal-acceptance program of the Council was terminated in February, 1955. Up to that time during this period, 28 devices were submitted for consideration for acceptance and reports were published on 32 pieces of apparatus. With the termination of the seal-acceptance program, plans were drawn up for the conduct of the Council's new program. These plans included the evaluation of general classes of apparatus and physical methods rather than individual brands of products, the preparation of guides to desirable performance characteristics of apparatus, standard methods of testing apparatus, the consideration of educational problems in the technical fields related to treatment by physical methods, and consideration of the medical, diagnostic, and therapeutic aspects of rehabilitation. This program was designed to provide the profession and the public with a much broader service than had been possible in the past.

As a result of the action of the House of Delegates in June, 1955, calling for the renaming and reorganization of the Council, this program will have to be reconsidered and studied. The Council authorized the publication of the following reports: An Appreciation; Principles for Evaluating Hearing Loss; Ultrasonic Energy for Therapeutic Purposes; Ultrasonic Therapy Apparatus and the Federal Communications Commission; Illegal Operation of Medical Diathermy Operation; and Federal Communications Commission Type Approval for Medical Ultrasonic Apparatus.

The Council's Physical Laboratory examined 60 pieces of apparatus for the Council and provided consultation services to numerous other headquarters departments that sought opinions in the field of medical physics. The Council received valuable assistance in its work from its many consultants and from its advisory committees. These committees include the Advisory Committees on Artificial Limbs, Audiometers and Hearing Aids, Education, Electrocardiographs, Electroencephalographs, Ionizing Radiations, Ophthalmic Devices, Respiratory Apparatus and Methods, and Sterility and Fertility.

Report of Council on Foods and Nutrition

With the completion of a quarter century of service to the medical profession and the public, the Council on Foods and Nutrition can look with pride on the major role it has played in the shaping of policies in the food industry and in the dissemination of authoritative nutrition information. At the time of the Council's inception, food advertising was subject to little control. Common foods were promoted widely as health foods, vitalizing foods, and tonic foods. The effectiveness of a nonpartisan authoritative group such as the Council in securing the cooperation of industry in modifying the nutritional and health claims made for foods is admirably demonstrated by comparing the food advertising in American Medical Association publications and other publications today with that of 25 years ago. The vast improvement is due in no small measure to the effects of the Council on Foods and Nutrition. A Council publication, General Decisions on Foods and Food Advertising, includes decisions and statements adopted by the Council for its own guidance and that of the public, food manufacturers, and advertising agencies on food composition, food advertising, and labeling, as well as special food questions relating to public health.

The Council was one of the first groups to encourage the enrichment of bread and flour. The widespread use of vitamin D fortified milk and iodized salt is due largely to the pioneering efforts of the Council. Today enriched bread and flour and iodized salt are common articles in every food store. A high proportion of bottled milk and practically all evaporated milk contains added vitamin D as recommended by the Council.

Because of the wide interest in sodium-restricted diets, a joint committee of the Food and Nutrition Board of the National Research Council and the Council on Foods and Nutrition prepared a report entitled, Sodium-Restricted Diets: The Rationale, Complications, and Practical Aspects of Their Use. Portions of this report of particular interest to physicians appeared in The Journal. Other portions of the report were published in the *Journal of the American Dietetic Association*. The complete report has now been published as Publication 325 of the National Research Council.

During the past year the attention of the medical profession was called to a hitherto almost unknown source of vitamin C. The acerola fruit, native to Puerto Rico, was shown to contain about 1.5 gm. of ascorbic acid per 100 gm. of juice or fruit. This, along with a complete proximate mineral and vitamin analysis of the product, was reported in an article in The Journal entitled, Nutrient Content of Acerola, A Rich Source of Vitamin C.

The fortification of the diet and of certain foods with individual amino acids is being advocated by some, and, because of the important public health aspects of this practice, the Council requested C. A. Elvehjem and Alfred E. Harper of the University of Wisconsin to comment on the subject. Their report, entitled Importance of Amino Acid Balance in Nutrition, was also published in The Journal.

Three additional articles have already been scheduled to appear in the near future. They are Clinical and Nutritional Aspects of Lipotropic Agents, Vitamin B-6 in Medical Practice, and Folic Acid and Vitamin B-12 in Medical Practice. Other subjects that will be covered in proposed articles are physiology and weight reduction, infantile scurvy, chemical fertilizers and the nutritional value of foods, food in the doctor's armamentarium, the oral use of electrolytes, and parenteral feeding. The latter two will be joint reports of the Council on Pharmacy and Chemistry and the Council on Foods and Nutrition.

Council members have also volunteered to contribute at least one short article or editorial on various current nutritional problems for publication in THE JOURNAL. This is part of the Council's increased activity in nutrition education made possible by the termination of the seal-acceptance program.

SYMPOSIUM

On April 4, 1955, the Council on Foods and Nutrition, in conjunction with the Nashville Academy of Medicine and the School of Medicine of Vanderbilt University, sponsored a one-day symposium at Nashville on Some Inorganic Elements in Human Nutrition. The Council hopes to publish the papers presented individually in THE JOURNAL and then put out a monograph containing all of them. The popularity of the symposium is attested to by the fact that it was attended by representatives of the medical profession, the dietetic profession, federal Food and Drug Administration, and interested members of the food industry.

GOLDBERGER AWARD

The fifth Joseph Goldberger Award in Clinical Nutrition was presented to Dr. Russell M. Wilder at a meeting of the Food and Nutrition Board of the National Research Council on Nov. 5, 1954. This was particularly fitting since Dr. Wilder participated in the organization of the Food and Nutrition Board in 1940 and served as its first chairman. He is also a former member of the Council on Foods and Nutrition. This award is presented by the American Medical Association through the Council on Foods and Nutrition and is made possible by a grant from the Nutrition Foundation. Previous recipients of the award have been Drs. Randolph West, Fuller Albright, Henry Sebrell and James S. McLester.

OTHER COUNCIL ACTIVITIES

In connection with the action of the Board of Trustees in terminating the seal-acceptance programs of all the scientific councils of the Association, more than 1,500 letters were sent from the Council office to processors and distributors of products eligible to display the Council's seal of acceptance. The Council was gratified by the response to these letters, since substantially all firms indicated they would be glad to comply with the action taken by the Board of Trustees and would cooperate wholeheartedly with any new program developed by the Council.

The final details of the Council's new program have not been worked out as yet, but it is anticipated that they will be published in THE JOURNAL in the very near future. In general the Council proposes to expand greatly its efforts in the educational field. It also proposes to develop desirable nutritional standards for certain classes of foods. Since the physical properties of foods are subject to regulation by the Food and Drug Administration and by the laws of the individual states, the standards to be developed by the Council will be directed toward the improvement of the nutritional aspects of foods. The Council will also review, on request, educational food advertising, i. e., informative advertising dealing with classes of foods without reference to specific brands, processors, or distributors, and, if found to be consistent with current authoritative medical opinion, permission will be granted to use a statement indicating this fact.

The Council is also revising its publication, General Decisions on Foods and Food Advertising. This booklet includes statements and decisions of the Council on food composition, food advertising and labeling, and special food questions relating to public health. It is the Council's belief that these will serve as valuable guides in the composition of accurate and informative advertising copy.

At its meeting in October, 1954, the Council took up many questions of nutritional importance. The addition of the amino acid, lysine, to bread and flour was not deemed to be in the public interest. In the Council's opinion, evidence is lacking indicating the need for lysine fortification of grains since lysine is found abundantly in animal products and there is no evidence that there is a deficiency of this nutrient in the American diet. In certain foreign countries such a fortification might be desirable.

The Council felt that the use in advertising copy of the Recommended Dietary Allowances of the Food and Nutrition Board and the Minimum Daily Requirements of the Food and Drug Administration should be clearly differentiated. The Council also adopted a statement concerning the sale of flavored milk drinks in schools, which reads, in part: "It is undesirable for . . . flavored milks to serve as the sole source of milk for a child; it would seem permissible for them to be used to vary the dietary."

Hundreds of inquiries about foods and nutrition were answered by the Council office. These came from physicians, laymen, advertising agencies, better business bureaus, and various trade organizations. In addition, manuscripts of articles written for popular consumption were reviewed for accuracy. The Council hopes to expand this phase of its activities, since it feels that every effort should be made to counteract the misrepresentations and half-truths about foods and nutrition appearing in the popular press. The Council's prestige in this field, along with that of the Association, can be extremely effective in encouraging the dissemination of truthful nutrition information.

ORGANIZATION

The Council regretfully accepted the resignation on May 1, 1955, of Dr. James R. Wilson who had served as its able secretary for more than nine years. Mr. Eugene H. Stevenson, who was Dr. Wilson's assistant for seven years, has been designated as acting secretary.

APPRECIATION

The Council wishes to express its appreciation for the cooperation and assistance of the Board of Trustees and the various departments at Association headquarters and to the many consultants it has had occasion to ask the services of during the past year.

Report of Bureau of Investigation

This is a 10 months' report, yet, during those 10 months, the Bureau handled more inquiries on the subject of nostrums and quackery than it had during the previous 12 months. More than 3,700 letters were sent, in response to inquiries on more than 4,300 subjects. The principal item of interest was the subject of cancer "cures" and treatments. While heart disease remains the principal cause of death, during the year the Bureau handled only seven inquiries on treatments for that condition. Lay individuals, most of whom were patients, comprised the largest single category of inquirers. Physicians themselves constituted the next largest single category of those seeking to use the facilities of the Bureau on the subjects with which it deals. Others who inquired were students and teachers, government agencies, better business bureaus, and newspapers and magazines.

While the dissemination of information gathered by the Bureau of Investigation on many subjects on the unscientific side of medicine remained its chief task, the message of the Bureau in its fight against quackery was also spread by personal appearances, exhibits, and television programs. The Director attended three meetings of the Committee on Cancer Diagnosis and Therapy of the National Research Council at Washington, D. C., in company with the secretary of the Association's Committee on Research, and was appointed a member of the Committee on Quackery of the American Cancer Society.

The Director feels it should be known that there has been increased activity in the field of acquiring knowledge and data in order to be more fully acquainted with the activities of those who would seek to mulct the public in the name of the healing arts. A considerable amount of time and effort has been spent, for instance, in learning more about the manner in which naturopaths are able to acquire licenses and diplomas. Several states issue licenses to these pretenders, a good many of whom have sought to enter the practice of medicine without requisite study. Certain states have naturopathic boards of examination; in others naturopaths practice without the benefit of such legal sanction.

Some information has been gathered that points to a traffic in diplomas. Overtures have been made by representatives of certain naturopathic groups to obtain licenses as homeopaths in certain states. The Bureau has made its files on this subject available to several of the state medical societies that are faced with the naturopathic problem. Unless legislators can be shown that naturopathic ambitions are not in the best interests of the public, the pattern of legal sanction in other states may develop and spread in much the same manner as has the licensing of chiropractors.

The Bureau also found it necessary to spend considerable time and effort in checking the activities of certain impostors whose talents for establishing themselves exceeded their medical knowledge and training immeasurably. An anesthesiologist who has also gone in for a confidence game is wanted in Oregon and Washington, and a Chicago person was convicted of unauthorized practice of medicine in Hawaii due to the alertness of the Honolulu Better Business Bureau. The time and effort spent in tracing the careers of impostors is felt to be justifiable, in view of the definite probability that harm can result. These men are usually found in large institutions. Physicians who are not satisfied that interns and residents have the requisite skill and knowledge, despite their pleasing personalities, should not hesitate to write to the Bureau of Investigation. The subject of a good deal of the Bureau's efforts to expose him has now left the state of Arkansas, where he practiced fraudulently for a period of 20 years. His license was declared null and void by a Circuit Court, after involved but interesting legal skirmishes. Currently he is reported to be in business in an eastern state, attracting cancer patients. The authorities there have been alerted. So far no report of success in dealing with the impostor has been received.

At the opposite pole of the Bureau's activities can be mentioned the invitation from a prominent syndicated health columnist to his readers to write to the Bureau of Investigation if they felt their doctor was a quack. It is a sobering thought that by far the majority of those inquired about did not fall within the Bureau's definition of a quack. While it may be observed that there is a segment of the population whose demands and expectations are beyond reason, still there must be some void in certain instances where the physician has failed in his immediate personal relationship with his patient.

The majority of inquiries concerning cancer "cures" were on the subject of Mr. Hoxsey and his cleverly publicized cancer treatment. Hoxsey has flourished in spite of federal regulatory activity, the most recent of which was a seizure action against a large quantity of pills in the possession of his recently opened branch in Pennsylvania. He has a state senator who runs it for him, who also is a columnist in certain local weekly papers. His medical director has been indicted for pretending to be a doctor of medicine. Nonetheless, Hoxsey continues to be an item of particular interest in view of his promotional activities, chief among which are stories lauding him and his treatment in several issues of the *Defender Magazine*. This publication sandwiches testimonials and articles on Hoxsey and other cancer treatments in between articles on religion and politics.

Another whose own advertising efforts have brought him a large following of the hopeful though gullible public suffered a major setback in defending a libel action he had filed against a magazine in the name of his "not for profit" corporation. Attorneys for the defense were able to wring from him on the witness stand the admission that of six cancer patients whose testimonials appeared in an advertising leaflet, five were dead and the other, whose skin lesion was not established as cancer, was treated by a technician with escharotics rather than by the chiropractic adjustments, hydrotherapy, diet, and massage of the principal. Advertising institutes, particularly in the western area of Missouri, continue to be one of the major sources of interest among elderly men. Such inquirers are informed, among other things, that any advertiser in the medical field is not only unethical, but, by such advertising, thereby confesses to inferiority.

Of genuine concern is the number of inquiries received on the subject of municipal fluoridation of water supplies. This is a field in which the scaremongers have been successful enough to cause repeal of municipal fluoridation ordinances in several areas. Oddly enough, a goodly number of those who have seized upon municipal fluoridation as a means whereby they may distribute their cautionary literature have in the past also had nothing but dire forebodings for the users of aluminum cooking utensils.

The Bureau acknowledges assistance and cooperation from representatives of state medical boards, state and local medical societies, and a good many conscientious practicing physicians. It has also received and appreciates the assistance of the staffs of the laboratories and the Councils of the Division of Therapy and Research of the Association. A good deal of the time of the Bureau's clerical staff is taken up in checking names for other agencies and offices, and, when necessary, full details of careers are furnished those agencies and offices. It is felt that the educational and reporting activities of the Bureau have been maintained at past standards of accomplishment, and it is the intention of the Bureau to improve and develop where possible.

Report of Council on Industrial Health

The following report of the Council on Industrial Health was prepared by Dr. Carl M. Peterson, Secretary, just before his tragic death on Sept. 27, 1955, as the result of injuries suffered in the crash of an airplane in which he was traveling to Asheville, N. C.

Several current activities of the Council on Industrial Health are described in this report that call for special consideration and authorization. These refer to intensified activity in the workmen's compensation field, medical rating of physical impairment, progress in preventive medicine, evaluation of management and union health centers, and the development of a local or community approach to occupational health matters using the health council technique as a pattern. The balance of this report will provide assurance that the scientific, educational, and organizational phases of the Council program are being carried out with vigor and dispatch.

WORKMEN'S COMPENSATION

An important history of disability and medical care insurance in this country may be found in the evolution and expansion of workmen's compensation. Although designed to meet work-induced disability, the accomplishments and failures of workmen's compensation provide a great fund of information essential to the considered analysis and development of existing and proposed general disability and medical care programs. Little, if any, use has been made of this vast reservoir of experience in a closely related field.

The Council has long recognized that circumstances involving two million injuries a year and costing 280 million dollars for medical services alone deserve concentrated interest. To this end both new and continuing activities in workmen's compensation have taken place. Publications of interest to the medical profession include: (1) the proceedings of the session on "The Challenge of Occupational Disability" during the 15th Annual Congress on Industrial Health, at which time national spokesmen for labor, industry, law, medicine, and administrative bodies defined the essentials and goals of a modern workmen's compensation program; (2) a 10 year study of insured employers' medical costs and related factors, entitled, "Some Monetary Aspects of Workmen's Compensation Experience in 39 Jurisdictions"; (3) a series of articles by workmen's compensation administrators describing medical care programs and the role of physicians in their respective jurisdictions; and (4) a bulletin on experience with leukemia cases under workmen's compensation prepared with the assistance of many administrators. The Council has continued to serve in an advisory capacity to state medical societies engaged in the development of improved medical care programs for the occupationally disabled. Pursuant to instructions from the House of Delegates, a further report with recommendations to the Board of Trustees on physician selection under workmen's compensation is in preparation.

At the invitation of the International Association of Industrial Accident Boards and Commissions, the Council has cooperated in the preparation of a sample handbook on the role of the physician in workmen's compensation. Many state medical societies have indicated there was a need for such information and encouraged the Council to participate in the project. The handbook will be presented as a joint report of the Association's Medical Committee and the Council on Industrial Health at the administrators annual meeting in September. It is anticipated that, through cooperation between administrators and the medical profession in each jurisdiction, an appropriate handbook will be available in the near future for distribution at local levels.

A major accomplishment of the Council has been the development of a guide for the evaluation and implementation of a progressive program in workmen's compensation for the medical profession. This statement appears immediately following this portion of the Council's report. The Council requests approval in order that state medical societies may give special attention to developing medical programs in accordance with these recommendations in the immediate future. The majority of state legislatures convene in the early part of 1957. Prompt action will permit medical organizations to be prepared well in advance to implement these programs by appropriate legislation where necessary.

Medical Relations in Workmen's Compensation

A Guide for the Evaluation and Implementation of a Progressive Program by the Medical Profession

FOREWORD

Since its inception the Council on Industrial Health has maintained an active interest in workmen's compensation. In recent years a series of studies has made it clear that there is widespread dissatisfaction with current policies, programs, and procedures. Those studies with special emphasis on medical aspects strongly suggest that present-day laws have not kept pace with advances in professional skill, technical knowledge, and substantial alterations in the political and socioeconomic milieu. Official actions by the House of Delegates of the American Medical Association, requests for assistance from state medical societies, and information developed through the Council's own investigations have demonstrated a need for a guide by which physicians, individually and as organizations, can reassess their proper role in this important sphere of medical service.

In formulating these guides, thoughtful consideration has been given to the views of recognized authorities and to representatives of many agencies whose interests are closely identified with workmen's compensation. Of special value was the session on workmen's compensation at the 15th Annual Congress on Industrial Health in January, 1955. At that time statements on the essentials and goals of a modern program were presented by spokesmen for labor, industry, law, medicine, and administrative bodies. The Council on Industrial Health acknowledges, with sincere appreciation, assistance and encouragement received from these sources.

The preparation of this report has been the work of the Council's Committee on Workmen's Compensation and Rehabilitation made up of the following members: Drs. Henry H. Kessler, chairman, Newark, N. J.; Lloyd E. Hamlin, Chicago; Rutherford T. Johnstone, Los Angeles; E. S. Jones, Hammond, Ind.; and O. A. Sander, Milwaukee. Special thanks are due to Earl D. Cheit, St. Louis; Bernard Hirsh, Law Department, Chicago; James J. Reid, Columbia, S. C.; and Herman M. Somers, Haverford, Pa., consultants who participated actively in the various stages of investigation and preparation.

THE MEDICAL PROFESSION'S INTEREST IN WORKMEN'S COMPENSATION

The workmen's compensation program in the United States was adopted primarily to meet certain needs of employees or their survivors resulting from disability or death of an employee arising out of and in the course of employment. In general, the program sought to remedy inadequacies stemming from common law and employers' liability statutes by providing laws based on the principle of insured liability without regard to fault on the part of either employee or employer. Of primary concern was the provision of cash payments to replace a portion of wages lost by disabled employees. Little or no consideration was given to the provision of medical care for occupational disabilities. Under the federal, state, and territorial laws enacted between 1911 and 1948, the major emphasis of the various systems and their administration has continued to be on monetary satisfaction of liability, with insufficient attention given to the rehabilitation of the occupationally disabled.

Substantial progress has been made in the extension of medical care, the application of improved clinical techniques, and other aspects of the rehabilitation process, including vocational training and selective placement of the disabled in kinds of work suited to physical and emotional capacity. It is a matter of great and growing concern that a considerable gap exists between potential services to the occupationally disabled and what is actually available to them.

In any event, many physicians have been deterred from widespread and active participation in workmen's compensation affairs. They are largely unaware of the significance of medical and economic policies under these laws and the undesirable and often harmful effects of existing systems. Whatever the causes, this attitude has been shortsighted and unwise to the end that not only workmen's compensation laws but other similar laws in related fields of social security are and have been formulated largely without medical consultation or any clear identification of medicine's primary interest. The predominance that economic considerations have come to occupy in both professional and administrative aspects of workmen's compensation is a natural consequence. These same considerations have led to a concentration of professional services and responsibility in a few and not always the best hands. The Council's studies and others [1] call attention to the need for critical appraisal of medicine's past record of performance and its present opportunities for the implementation of new and creative concepts.

The Council on Industrial Health is convinced through its consideration of the findings in this report that physicians have a duty and responsibility, both as members of professional organizations and as citizens in an industrial society, to improve the lot of the occupationally disabled. The several recommendations contained herein are presented with that purpose in mind.

Goals of Workmen's Compensation.—The basic goals of workmen's compensation today are: (1) rehabilitation of the occupationally disabled; (2) assured, prompt, and adequate indemnity for the occupationally disabled or their survivors; and (3) minimal cost to employers and society commensurate with the above provisions.

Implementation of These Goals.—The essential elements in the implementation of these goals from the medical point of view are described in the following sections of this report. Actually, sustained cooperative effort by all individuals and groups concerned with the welfare of the occupationally disabled are essential to success.

Rehabilitation of the Occupationally Disabled.—Rehabilitation implies the effective use of all disciplines and skills dedicated to the conquest of disability. Aside from great benefit to the disabled, their families, and society, current experience has amply demonstrated that the provision of rehabilitation services results in substantial savings in both medical and indemnity costs, just as the development of medical care provisions has resulted in savings in indemnity payments.

The establishment of workable rehabilitation programs calls for specific statutory provision, planned and improved cooperation from the medical profession, and intelligent, forceful administrative supervision.

Statutory Provisions.—Periodically, workmen's compensation legislation and rulings come up for review. To implement a proper rehabilitation program, the medical profession should seek adoption of statutory provisions that recognize these points: 1. Rehabilitation of the occupationally disabled is the intent and responsibility of the compensation system and the legal right of the employee. 2. The disabled employee is entitled to all services, appliances, and supplies required by the nature of his disability or the process of his recovery and that will promote his restoration to or his continuance in employment. Services include medical, surgical, dental, hospital, and nursing attendance and treatment, as well as the training necessary to rehabilitation. Appliances and supplies include medicines; medical, surgical and dental supplies; crutches; artificial members; and apparatus. Service, appliances, and supplies are to be paid for by the employer under the supervision of competent professionals responsible to the administrative agency. 3. In the absence of stipulated agreements, professional fees should approximate those that would be charged the employee as a private patient for similar services. 4. Disabled employees should have the right to accept physicians' services provided by employers or to select another attending physician from a register of all other physicians in the community willing and able to perform the essential services.[2] 5. Vocational counseling, training, transitional employment, and placement services require prompt analysis of problems, efficient screening, and referral and follow-up techniques to assure proper training and results. Effective supervision of these services in public or private facilities requires prompt reporting of occupational disabilities to the administrative agency. 6. When necessary administrative procedures for such a system of rehabilitation of the occupationally disabled do not exist or when adequate facilities are not readily available, steps should be taken to provide them.

---

[1] Operating Principles for a Modern Workmen's Compensation System, Bull. Am. Coll. Surgeons 40: 57 (Jan.-Feb.) 1955. Medical Relations under Workmen's Compensation in Illinois, Monmouth, Ill. Illinois State Medical Society, Committee on Industrial Health, 1953.

Planned Cooperation from the Medical Profession.—Successful operation of a workmen's compensation system depends increasingly on the medical profession. Although the administrative agency has the ultimate responsibility by law, medical care is the core of the system and physicians play a major role. Every year hundreds of thousands of the occupationally disabled depend on physicians for care and guidance from the beginning of disability until they return to gainful employment and even beyond. Physicians are also responsible indirectly for the payment of a substantial portion of their patients' income during disability. Compensation payments amounting to many millions of dollars annually are based on reports and, in disputed cases, on testimony provided by physicians.

The medical profession in each workmen's compensation jurisdiction [2] can best fulfill its responsibilities by providing a broadly representative committee to advise the administrative agency on medical policies and practices and to assist in the operation of the system in the following ways:

1. The committee should prepare and submit at stated intervals to the administrative agency appropriate information for use in establishing a register of physicians who are willing and competent to accept calls for service to the occupationally disabled. Regulations governing enrollment on the physicians' register should be established by the administrative agency after consultation with the medical advisory committee. 2. It should mediate, if possible, complaints that a physician has neglected or refused to furnish reasonably necessary reports in accordance with general orders of the administrative agency. 3. It should mediate, if possible, complaints of unreasonable interference with matters properly within the discretion and control of the attending physician. 4. It should mediate, if possible, differences that may arise relative to remuneration. 5. Claims of violation of medical ethics should be reviewed and relevant facts referred to the appropriate agency. 6. Complaints should be heard about the competency of those serving on the physicians' register and recommendations made to the administrative agency concerning the removal of names therefrom, if complaints are justified.

If the advisory committee is unable to function promptly, the administrative agency should take appropriate action within the powers vested in it by law.

The medical profession should join with the administrative agency in sponsoring educational programs for all concerned on clinical and administrative problems in the compensation system. Other joint activities should include the development of proper medical report forms, desirable legislation to improve the workmen's compensation system and its administration, and handbooks for physicians.

Role of Individual Physician.—The primary obligation of the individual physician is to see that his patient is restored as nearly as possible to the economic and personal effectiveness that he possessed before he was disabled. This requires competent and impartial medical care and also that the physician use or recommend the use of other technical skills and resources available, whether in the community or not.

Physicians who wish to receive calls for service to the occupationally disabled should be prepared to assume duties and obligations that are not encountered in private practice. The best interests of the disabled patient will be served in the following ways:

1. Concise, accurate information and reports descriptive of the disability should be furnished promptly and to the same extent to the patient or his dependents, the employer, the workmen's compensation insurance carrier, and the administrative agency. 2. Testimony should be made before the administrative agency on reasonable notice. The physician's testimony must adhere to reasonable, scientific deductions regarding the injury, disease, or possible sequelae to the end that every deserving claim receives just consideration. 3. Consultation should be requested in case of serious illness, especially in doubtful or difficult conditions, and agreement given for consultation with mutually acceptable physicians when requested by one of the interested parties. Effective rehabilitation goes beyond accurate diagnosis and expert treatment. Although the attending physician should remain in charge, he must embrace the modern concept of teamwork in the rehabilitation process. Physicians should not only cooperate with each other but also collaborate with the whole team of paramedical workers to assure maximum rehabilitation. 4. Determination should be made by scientific methods and on the basis of objective measurable factors of the permanent anatomic or functional impairment of a specific member or of his patient as a whole as compared to normal. From the medical standpoint, permanent anatomic or functional impairments cannot vary because of geographic locations or circumstances under which they were incurred. Therefore, the physician should determine the percentage of permanent impairment without regard to age, sex, occupation, or real, presumed, or potential wage loss. The application of these and all other factors provided by law to the percentage of permanent impairment established by the physician is the responsibility of the administrative agency in determining the indemnity award. In general, physicians are no more qualified by experience or training to evaluate such factors than any other disinterested individual.

Administrative Supervision.—Rehabilitation of the occupationally disabled requires a competent administrative agency with full statutory authority and responsibility. The administrative agency must have more than adjudication and appeals functions; it must have an affirmative duty to see that the intent of the law is carried out. It may delegate functions, but it cannot abdicate responsibility. Proper discharge of this trust requires adequate resources in terms of qualified, permanent, professional personnel and proper facilities.

Duties should include supervision of the rehabilitation process and indemnity payments for permanent disability during and following the maximum rehabilitation of the disabled employee. To assist in the administration of the law, the agency should seek the advice and active cooperation of appropriate professional, private, and public organizations.

The administrative agency should have a medical director, approved by the medical profession, and a qualified vocational counselor. As staff officers, they should be in charge of the administration of appropriate provisions related to the rehabilitation of the occupationally disabled and should participate in such policy-making deliberations of the agency. They should have the full support of their superiors and constantly strive to provide leadership and promote effective professional relations in their fields through the maintenance of approved professional standards and practices.

Indemnity.—The physician's interest involves recognition that the amount and method of indemnification have a direct and important bearing on an effective rehabilitation regime. While over-generous indemnity can dull the will for rehabilitation, inadequate indemnity requirements can destroy an employer's incentive to support rehabilitation by providing him with an easier or cheaper alternative. More important, inadequate indemnity can lower patient morale or force return to gainful employment in advance of clear-cut medical indications.

In view of these relationships, it is consistent for the medical profession to support methods of indemnification that contribute to, rather than obstruct, rehabilitation procedures. Certain factors merit consideration.

---

[2] Physicians and the Workmen's Compensation Act, Wisconsin M. J. 54: 77 (Jan.) 1955; Agreement on Panel Practice, ibid 54: 84 (Jan.) 1955.

Inadequate Cash Indemnity: Inadequate cash indemnity encourages "lump-summing" of payments, which tends to interfere with rehabilitation motivations. The practice should, therefore, be limited to instances where dependable evidence supports the contention that such a payment would contribute to the over-all rehabilitation of the employee. Problems of paying for legal, medical, and other services should not influence the determination of whether a lump sum should be allowed.

Not Relief Program: Workmen's compensation is not a relief program. It is the proper intent of the program that a disabled employee and his family should not suffer a serious reduction in normal living standards during the rehabilitation period. This requires that the benefit level be maintained at an adequate percentage of usual wage and include reasonable personal expenses incurred by the employee in the course of the rehabilitation process.

Effective Rehabilitation: Effective rehabilitation can drastically reduce the number of permanently disabled employees, which now constitutes the heaviest burden on workmen's compensation systems. Physicians interested in a rehabilitation program acceptable to permanently disabled employees recognize that attempts to relate indemnity payments solely to loss of earnings is impractical and unscientific. While it is not the purpose of workmen's compensation to indemnify all individual consequences of a disability, such as pain, suffering, and humiliation, the employee's right to personal effectiveness is not confined to employment or a limited period of time. Personal motivation to maximum rehabilitation can be hindered by complete deprivation of indemnity for permanent anatomic or functional impairment, whether it be a member or an organ of the body. Therefore, indemnity for permanent disability should be related to the employee's permanent impairment of earning capacity—in effect the anatomic and functional handicap incurred in working for a given employer. Maximum rehabilitation should be encouraged, and to this end the award for permanent disability should be based on the effect of such a handicap on the earning capacity of the average employee so as not to penalize a disabled employee for exercising individual initiative.

Continuing Jurisdiction: The administrative agency should have continuing jurisdiction of these cases and indemnity payments should be subject to review whenever evidence is clear that the original evaluation of permanent impairment of earning capacity was in error.

Methods of Compensation: Various methods of compensating employees with preexisting permanent impairments have been devised. Most commonly the impairments must involve loss of a member that, combined with a subsequent injury, results in permanent total disability. In these cases liability is apportioned generally between the employer at the time of subsequent injury and a state fund established for this purpose. In recent years increasing consideration has been given to cases where the preexisting condition is an organic disease that, combined with a subsequent injury, results in increased or total permanent disability. While the medical complexities alone of this problem are apparent, intensive study is currently being given to the equitable resolution of the whole problem when (1) further decrease in earning capacity or death of these employees can be clearly established on the basis of responsible scientific knowledge to be causally related to their employment, and (2) such causal relationship cannot be so established.

CONCLUSION

The Council on Industrial Health wishes to emphasize again the importance of participation by physicians, individually and collectively, in a critical appraisal of medicine's past performance and its present opportunities for the implementation of new and creative concepts in workmen's compensation. Requests for additional information and assistance should be addressed to the Council on Industrial Health, American Medical Association, 535 N. Dearborn St., Chicago 10, Ill.

MEDICAL RATING OF PHYSICAL IMPAIRMENT

The medical rating of physical impairment has long been recognized as an increasingly complex subject. The absence of uniform scientific standards has led to a plethora of "solutions" not only in workmen's compensation but in other programs concerned with physical impairment. A serious problem is the lack of uniformity in substance and acceptance. With the increasing number of programs involving medical rating of physical impairment, it is imperative that the medical profession be provided with suitable guides that permit the determination of permanent anatomic or functional impairment by scientific methods and on the basis of objective, measurable factors.

The Council on Industrial Health requests specific instructions as to whether (1) the Council should continue, through its Committee on Disability Evaluation, to formulate guides for use by the medical profession in workmen's compensation cases only or (2) the American Medical Association should initiate the formation of a broadly representative committee composed of lay and medical representatives from public and private agencies to the end that uniform standards applicable to all cases of physical impairment may be established. If the latter course is taken, cumulative experience under workmen's compensation can be invaluable.

PROGRESS OF PREVENTIVE MEDICINE IN INDUSTRY

It is a frequent comment by labor groups that "What we don't get by legislation we get by negotiation." This applies to medical and health benefits as well as to wages and working conditions. If it can be presumed that more and more medical care will be negotiated and that industry will pay for it, then there will be increasing demands from management for prevention to reduce the risk. In other words, common practices in workmen's compensation will be broadly extended. The Council foresees increasing numbers of physicians invited to serve industrial plants as health conservers, using the accepted techniques of preventive medicine and environmental controls. In recognition of the growing trend, several steps appear to be desirable: (1) an intensification of industrial health activity in state medical societies for purposes of general information and to keep clear the channels of communication between industrial practitioners and private physicians; (2) wider and more direct application of "Guiding Principles of Occupational Medicine" prepared by the Council to permit development of industrial medical programs along ethical and professional lines; (3) more opportunities for professional training, especially of general practitioners; and (4) an improved publications program to bring these developments to the general attention of the medical profession.

The Council has made special provision for this kind of program in its budget, based on two alternatives—an addition to the headquarters staff or the appointment of regional consultants to maintain direct contact with state medical societies.

EVALUATION OF MANAGEMENT AND UNION HEALTH CENTERS

The presentation of "Guiding Principles for Evaluating Management and Union Health Centers" in the report of the Council on Medical Service to the House of Delegates last June culminated many months of diligent work on the part of the Committee on Medical Care for Industrial Workers. This lengthy statement is not reproduced here. However, the Council on Industrial Health has endorsed the work of this committee and recommends its approval.

LOCAL OR COMMUNITY APPROACH TO INDUSTRIAL HEALTH PROBLEMS

Traditionally, the health requirements of an industry are met by the appointment of a plant physician or nurse, who proceeds to adapt the service to prevailing needs. The Council on Industrial Health is interested in other possibilities such as joint consideration of the health needs of local industry by committees representing a county medical society, county health department, local chamber of commerce, and local labor council. Current experiments suggest that under this kind of arrangement a much greater degree of participation by local practitioners could occur and certainly improved correlation between industrial medicine and the existing patterns of community health and medical care. Possibly an adaptation of the health council idea would serve admirably.

The Council requests approval of an attempt to set up a trial program in a suitable industrial community under the general direction of a special committee appointed for that purpose. Some financing may be necessary from some source.

Medical Care for Industrial Workers

The additional activities of this important joint committee are described at some length in the report of the Council on Medical Service. All of the activities have earned the warm interest and support of the Council on Industrial Health. Unions believe that they have found a method of providing their memberships with a type of medical service unavailable to them through normal channels. The Council on Industrial Health has in mind a recommendation to its joint committee to continue to study current experience and experiments by medical societies and others as a means of suggesting to a much wider audience ways and means of meeting the challenge. Here again, advice is requested about the desirability of planned experimentation in a receptive community between a county medical society and a union.

Improved Educational Standards

During the year the Council on Medical Education and Hospitals and the Advisory Board for Medical Specialties approved the inclusion of occupational medicine as one of the specialized fields associated with the American Board of Preventive Medicine. The Council has not been directly concerned with this development although several of its members were instrumental in planning and procedure.

The Council on Industrial Health and the Council on Medical Education and Hospitals are collaborating in another equally important educational project in company with the National Fund for Medical Education. A three-day conference on education of physicians for industry will take place late this year. This session should have the double result of setting a genuine educational activity in motion, convincing industry that at least some of its contribution to medical education is channeled in directions having direct practical application.

Scientific Development

The Council looks with particular satisfaction on two scientific developments completed during the year under its direct sponsorship. One was the first extensive conference on the impact of the atomic energy industry on community health based on the current transition from public control to private corporate use. The Council is greatly indebted to the staff of the Division of Medicine and Biology of the Atomic Energy Commission for the success of this symposium. The second was the completion of "Estimation of Loss of Visual Efficiency," a revision of the American Medical Association method of calculating visual losses due to accidents or disease. This is a long-awaited report that should have far-reaching results in workmen's compensation and allied fields. The able committee concerned with this report consisted of Drs. Edmund B. Spaeth, F. Bruce Fralick, and William F. Hughes Jr.

The Council's Committee on Occupational Dermatoses continues to serve most effectively. Its recent report on dermatoses due to oils used in industry has been widely circulated by and throughout the petroleum industry. The Committee on Physical Examinations has completed a thorough revision of the Council's former brochure on this subject. The Committee on Industrial Medical Records is completing an intensive analysis of purposes, forms, filing methods, and disposition of these documents. The Committee on Occupational Cancer has been reactivated and will concentrate on methodology for detecting inordinate cancer risks and a survey of present knowledge of skin cancer with special reference to ultraviolet radiation. Close contact is being maintained with the Committee on Noise in Industry of the American Academy of Ophthalmology and Otolaryngology. A member of the Council sits with this committee as a liaison member. The Council has under advisement a definition of medical interest and responsibility in air pollution. Special articles are in preparation on beryllium and pneumoconiosis. Other activities involve establishment of threshold limit values for toxic materials, medical problems in the construction industry, noise control in foundries, and completion of a chapter on medical nursing and first aid services for the Accident Prevention Manual of the National Safety Council.

This rapid summarization of technical, educational, and scientific activities should not impair recognition of their importance, all of which will be intensified in coming months. The Council will always want to preserve its status as a scientific body as well as one greatly concerned with socioeconomic affairs.

Interprofessional Relations

A full-scale revision of "Standing Orders for Nurses in Industry," one of the Council's most requested reports, is in the final stages of completion. On advice of counsel and with excellent cooperation from representatives of industrial, medical, and nursing organizations, this document will be renamed, "Guiding Principles and Procedures for Industrial Nurses." A committee of industrial hygienists is preparing an extensive brochure on Plant Hygiene Studies, again a revision of a former Council report that had outlived its usefulness.

More recently, this Council has begun negotiations with psychiatric groups, industrial medical associations, the Academy of General Practice, and the Council on Mental Health, to review the ways in which industrial medicine could participate more effectively in the mental health movement and the means by which tensions and friction of work and home life might be reduced by the application of practical industrial psychiatric services.

Report of Council on Rural Health

The Council on Rural Health is convinced that it has cemented its good relationships with farm organizations and rural groups throughout America this year to a greater extent than it has heretofore. It feels that the rural organizations have a greater respect for and understanding of the practice of medicine and the organization of medicine than has been true in the past. In short, the Council believes that it has made marked progress this year in the field of lay understanding of rural health and medical care. At the same time, it realizes that there are still problems in many of the states and areas and that much work is yet to be done.

The Council appreciates the wholehearted support and cooperation it has received from the Board of Trustees and the House of Delegates in its many activities and is happy to present this report of progress, which is both an evaluation of the work done and a frank appraisal and critical analysis of the work yet to be done.

Probably the best way to understand the Council's activities is to present a brief review of its philosophy. The Council has repeatedly explained to the lay organizations with which it works that it is claiming no privileged position for medicine in its relationships with them but that it has a sincere desire to lend leadership and support to worthwhile lay movements and to promote cooperation between the medical profession and these groups in every state of the nation. Therefore, no set program is developed in Chicago and taken out to the states in either suggested or concrete form. It has been the policy of the Council to work in a catalytic relationship with these various organizations and organized medicine for the purpose of counseling together until an understanding is reached as to what the problems might include and then helping to discover ways to deal with each problem outlined.

Some of the problems have been real and some imaginary. In the light of discussion and on presentation of factual information, the imaginary problems have disappeared, creating through the years a real opportunity to work together. The Council believes that it has brought about a greater appreciation of the progress made in the last 50 years, both in the field of the prevention of illness and in medical science in the curative field. Lay organizations have appreciated and profited by this frank, unselfish attitude on the part of the American Medical Association and the Council on Rural Health, and abundant evidence of full confidence and full cooperation on the part of physicians and lay groups can be seen. It is developing now into maturity and profitable, understanding relationships across the nation. Where once groups, individuals, and organizations were suspicious of each other, they now work in wholesome activities with understanding and devotion. This is gratifying to the Council on Rural Health, which believes this wholesome movement is restoring America's confidence and local initiative in the solution of problems.

This year each member of the Council has supplied a report for his area. With minor exceptions these reports are presented herewith, inasmuch as they illustrate the variety of situations and problems as well as the ways by which these have been solved.

The regional directors and the states included in their areas are as follows:

Dr. Norman H. Gardner, North Atlantic Region: Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, Delaware, New York, New Jersey, and Pennsylvania.

Dr. George F. Bond, Middle Atlantic Region: Maryland, West Virginia, North Carolina, South Carolina, Kentucky, Tennessee, and Virginia.

Dr. Carll S. Mundy, North Central Region: Michigan, Missouri, Ohio, Indiana, and Illinois.

Dr. Charles R. Henry, Southeastern Region: Florida, Georgia, Alabama, Mississippi, Louisiana, and Arkansas.

Dr. Allen T. Stewart, South Central Region: Oklahoma, Kansas, and Texas.

Dr. W. A. Wright, West Central Region: North Dakota, South Dakota, Iowa, Nebraska, Wisconsin, and Minnesota.

Dr. Fred A. Humphrey, Rocky Mountain Region: New Mexico, Colorado, Utah, Montana, and Wyoming.

Dr. W. J. Weese, Pacific Northwest Region: Idaho, Washington, and Oregon.

Dr. Henry A. Randel, deceased, Southwest Region: California, Arizona, and Nevada.

NORTH ATLANTIC AREA

The New England States are beginning to see that some sort of rural health problem exists in their states and are beginning to have a desire to do something about it. This is the typical, slow but steady approach of the area. Massachusetts and Rhode Island must of course be eliminated, since these states feel they have no rural problems. Vermont has held a pilot conference but seems to have no idea where to go from there. The important thing is that they are concerned enough to desire a conference and feel that it is important to continue. The New England Council of State Medical Societies held a meeting in Boston this past spring, which gave an excellent opportunity to contact the men from Maine, New Hampshire, and Vermont. They are anxious to have some type of regional conference on rural health. Heretofore the interest in a conference has been felt from the farm groups. Now that the state medical societies have begun to show an interest, the project cannot fail. A pilot meeting of persons interested is being planned to be held at Boston in the fall after the Advisory Committee-Council meeting in Chicago. This should have the desired effect and lead to the first regional conference in the area.

Pennsylvania held its first conference this year. It was apparently not too well attended, but from the lessons learned a future meeting will be more successful. Dr. C. L. Palmer of the medical society of the State of Pennsylvania and Mr. Beatty Dimit of the grange are potent forces in the state, and their interest will certainly serve to continue the work in Pennsylvania. Connecticut still continues to carry on the work as an educational project. The people in this state must be educated to the full use of the facilities that are already available to them. New Jersey seems to show less interest than in the past, but it is felt that this will be corrected in time, and the work is not at a standstill by any means. New York continues to carry on its work with cooperation from Cornell, and it seems to be a workable and successful method for them.

MIDDLE ATLANTIC AREA

In this area considerable progress has been made in the past year in continuing all of the programs that have been started and strengthening others. There still are one or two problem states in which the work will be continued with the hope that the entire region will be on a fully functioning basis within the near future. Excellent progress has been made in the past year in Maryland. All the elements for a successful rural health program and full cooperation have been present, but during past years it has not been possible to bring these together. This year the medical society and the Agricultural Extension Service joined together in a program in connection with the Farm Women Leaders Conference of Maryland, and other organizations participated. It was a most worthwhile activity and will lead to further understanding in the development of a program through the years.

In Virginia, the work of the Virginia Council on Health and Medical Care has continued with the largest emphasis being on placement of physicians. This is a matter that has fairly well taken care of itself in that state, and the fact that the Council was the sponsor of a conference on problems of nutrition and overweight brings it into the broader field of health activities. All groups are cooperating in a commendable way, and it is hoped this can be strengthened within the next year or two by the further broadening of the program.

North Carolina has developed a new activity this year in the holding of two regional rural health conferences in addition to the state rural health conference. A new rural health consultant has been employed by the Medical Society of the State of North Carolina. Her activities are integrated with that of the Committee on Public Relations, and the lay people form the advisory group with the Committee on Rural Health of the state medical society. Illustrative of the fine work that has been done in this state is a leaflet entitled "Check Your Health," which is designed for the farm women but is in wide use by many organizations. The purpose of it was to set up what can be reasonably expected from a physical examination and to set forth the idea that these examinations can best be done by the family physician. The securing of a family or personal physician by every farm family in the state is being encouraged.

In Kentucky, the rural health groups continue to cooperate in holding the rural health conference and in follow-up activities throughout the year. The cooperation in the medical scholarship program by all groups, including the rural organizations, has been carried on in a fine way. The rural health committee feels that its greatest accomplishment is in the field of coordinated activities among the various organizations serving rural Kentucky.

In Tennessee, community health conferences were held earlier in the year, and it is planned that these will be expanded into a statewide rural health conference early next year. As in all states, many activities are being carried on through various types of clubs and organizations, but the Tennessee Medical Foundation, an organization sponsored by the Tennessee State Medical Association, attacks certain target areas in which particular problems such as office facilities and the need for a physician and dentist have been very successfully undertaken.

There still is a problem in getting a rural health program established in South Carolina, but, with the appointment of the new committee in that state, it is felt it can be done within the next year or two.

NORTH CENTRAL REGION

In Indiana, Illinois, Michigan, Missouri, and Ohio, the state rural health committees have been active, and progress made during the past 10 months reflects that activity. As a result there has been no occasion for the regional director to make personal visits to any of these states. Four have held rural health conferences at the state level and two, Indiana and Ohio, at district levels. All have physician placement programs that are active and are doing an effective job. In most of these states there are relatively few areas not covered by a physician, and in two of them it is felt the entire state is now adequately supplied. A cordial working relationship with farm groups exists in all the states. Four have rural physician training programs of one kind or another: two have scholarship programs now in operation for some years; and two have rural physician recruitment programs. All states have programs that by one means or another have made Blue Cross and Blue Shield available to farm people.

A number of interesting and unique activities are presently in progress in these states. Missouri is conducting a study of indigent care among rural people; Michigan is still studying the problems arising from the industrialization of rural areas; Illinois is developing a program to give statewide coverage in Blue Cross and Blue Shield to rural residents, and Ohio is broadening both the recruitment and training programs for rural practice within the curriculums of the medical schools in the state.

SOUTHEASTERN STATES

On Nov. 11, 1954, it was the privilege of the regional director to attend the 8th annual conference of the Louisiana Health Council. It is through this organization that the Rural Health Committee of the Louisiana State Medical Society functions. There are many objections to this arrangement, and many problems of physician participation have arisen because of it. The chairman of the council, Dr. F. S. Crockett, and Mr. Aubrey Gates, Field Director, spent several hours with Dr. Wiginton discussing other approaches to the problem in Louisiana, and another conference is planned for Oct. 31, 1955. At this meeting there was an opportunity to meet physicians and auxiliary members, representatives of the state board of health, and other official organizations. It is regrettable that farm organizations and farm leaders were absent, but it is hoped that these people can be brought into the program and their influence and talents used.

Last year there was difficulty getting interest and action in the rural health field in the states of Georgia and Alabama. It is most gratifying to report that there is now a fine program in operation in Georgia. Dr. George Nicholson deserves credit for interesting physicians and surrounding himself with a group of excellent workers. The entire rural health needs of the state of Georgia have been discussed and the following objectives were decided upon.

Encouraging general practitioners to go to rural areas and obtaining better physician distribution

Stimulating communities to provide better facilities for practice

Educating physicians and community leaders to solve health problems at the local level

Studying mental health with particular emphasis on alcoholism as a problem in rural areas

Expanding the immunization program in the state

Promoting senior medical days in the two medical schools of the state

Conducting a rural health conference

One cannot help being impressed with the soundness of the program in Georgia. It is thoughtfully conceived and most of the objectives have been worked on. The Senior Medical Day program at Emory University and at the University of Georgia were well received and thought to be highly successful. A state rural health conference is planned for next spring.

At the Clinical Meeting of the American Medical Association in Miami, a breakfast meeting was held for rural health chairmen, presidents and public relations directors or executive secretaries of the state medical societies in the southeastern states. There were present representatives from all states. A similar breakfast was held at the National Rural Health Conference in Wisconsin.

The Mississippi Rural Health Conference was held March 31, 1955. Dr. S. K. Johnson, chairman of the Committee on Rural Health, presided, and Dr. S. L. Bailey, president of the Mississippi State Medical Association, gave the keynote address. While the attendance was small, it was triple the first year's effort. The conference received good newspaper and radio coverage. Again rural leaders and physicians were not present in any number. Mr. Gates and the regional director visited with physicians and members of the Mississippi State Health and Community Service Planning Group, a sort of health council. It is hoped that the Mississippi State Medical Association will accept the responsibility of the health conference and not be restricted by a council of official agencies.

The Rural Health Committee of the Florida Medical Association has been doing a good deal of experimenting with a rural health program. The problems of this state have not been satisfactorily resolved, but the Florida group is active and a program will undoubtedly be decided upon in the near future. Alabama continues to show no sign of interest in rural health activities. As a matter of fact, the chairman of the committee reported to the state medical society that, because there were no problems in rural health, this committee had not functioned. A visit to the president of the Alabama Academy of General Practice is planned to see if that group will sponsor a rural health program. In the parlance of the theatrical world, the 1955 Arkansas Rural Health Conference was a "turkey."

SOUTH CENTRAL REGION

Progress in this area has been along the lines mentioned in the last report. In each state the chapter of the American Academy of General Practice is quite active, and an annual scientific program is presented to the members. The medical schools also have cooperated well in presenting programs of interest to general practitioners at the district and county level. All this activity has assisted the doctor in the smaller community to keep abreast of medical progress and to be more content to remain where he is, since he no longer feels isolated in his postgraduate education. The student day programs, wherein the medical schools cooperate with leaders in general practice to present a program to senior students and to interns outlining such subjects as the advantages of practice in rural communities, consideration of the problems of opening and maintaining an office, selection of personnel, rentals, and securing a home are well received. This medical student day program appears to be a fixture now in the medical school program, and both faculty and students are enthusiastic in the reception it receives.

The efforts of the Field Director of the Council in coordinating the work of those who are interested in rural health has proved invaluable. The work of extension services of land grant colleges, of county agricultural agents, home demonstration agents, and in many cases of parent-teacher organizations has been investigated and a more coordinated effort with less duplication of labor has been worked out. Each state has a committee on doctor distribution that has proved very effective in finding locations for young doctors and in bringing such doctors and community leaders together to work out the problem of a home and an office. In one state a systematic survey of each councilor district is being made, whereby mayors and chambers of commerce are sent questionnaires relative to their problems of local medical service. Once the answers are compiled, the committee can then move forward without waste of effort to meet the needs of specific localities.

Voluntary prepayment health insurance has moved more slowly in rural than in urban areas, but leaders in this field are acutely cognizant of the problem and are coming up with policies that are available to rural people on an individual instead of a group basis. Once rural patients and rural doctors are circularized more thoroughly concerning this development, another inadequacy in the field of rural medical service will be wiped out.

WEST CENTRAL STATES

The largest single activity in this area, and by far the most important, was the fact that the annual National Conference on Rural Health was held in Milwaukee last March. People were greatly stimulated by this very effective conference, and it has had a very good effect in arousing increased interest in rural health activities throughout this entire region. Many congratulatory comments have been received from people attending the conference. Throughout the area an increasing interest on the part of the medical profession in the work has been noted. There has always been a considerable lack of interest on the part of doctors themselves in what the Council is trying to do. It is believed that in the past several years, due to attendance at rural health conferences, to the unremitting efforts of the Field Director, and to other reasons, there is an increasing interest on the part of the various state medical associations and individual doctors in the work of the Council. Doctors throughout the area are spending more and more time working with various nonprofessional and allied professional groups to improve rural health in general and for a greater understanding on the part of nonmedical people of the sincere efforts that are being put forth by the American Medical Association to improve relationships in general.

As reported last year, there still seems to be sufficient or nearly sufficient hospital, clinic, and office facilities in this area. There has been considerable discussion as to how the rural areas may make effective use of the new Hill-Burton Hospital Act, especially relating to chronic disease, rehabilitation, diagnostic centers, and nursing home facilities. It would seem that the provisions of the act would almost make it impossible for such facilities to be provided in a rural area. However, many people are studying this problem, and no doubt an effective solution may be found for it. Most state organizations are now engaged in activities leading to the provision of more and better personnel and to a better education of people in general as to the proper use of health facilities available. It would seem that education in this and related fields would be a major activity for some years to come.

It is regrettable to report that there is a distinct undercurrent of socialistic opposition developing throughout this area. In spite of the fact that there is no apparent definite organized movement for outright socialized medicine, there is a very strong build-up program being developed from various quarters. This is one of those intangible things that is hard to pin down, but one distinctly has the feeling that, in many organizations, those with left-wing or socializing tendencies are busily at work. Therefore, it is necessary that the medical profession be continually alert for such manifestations and that all organizations interested in promoting health, either voluntary, special disease society, public health organization, or others, should be influenced wherever possible by members of the American Medical Association. There is a continuing interest in prepayment insurance among rural people, and it is possible that the Council on Rural Health could interest itself in this field further and endeavor to make prepayment insurance more applicable to rural people.

Rocky Mountain Region

The committees of some of the state medical societies in this region have been very active, while others have been inactive due to lack of initiative or interest. Certainly rural health problems are present and can be found and improved in every state in the Rocky Mountain area. On the positive side of the ledger, there is a program that is being followed in a number of states, at least in a few instances. Medical schools are now on an accelerated schedule of four quarters with one fourth of the senior class out of school one quarter of each year. During their time off these senior students work in hospitals or associate themselves with men in the private practice of medicine. The students and many doctors in rural areas would find such an association to be of mutual benefit. An addition to any rural health program, no matter how active it might otherwise be, would be to act as a clearing house through which the rural physician and the medical student could become acquainted. Due to this association, many of the medical students would undoubtedly locate in rural areas after completing their training.

Colorado.—During the year 1954-1955, several meetings have been held by the Rural Health Committee of the Colorado State Medical Society. The advisability of having another rural health conference for the région, to include the states of Colorado, Wyoming, Montana, Utah, and Arizona, was discussed, but the consensus was that such a meeting would not serve any purpose at the present time; consequently it was deferred.

The Rural Health Committee has urged all of the counties in Colorado to investigate any advantages that a county health council can be to a rural community. With organized county health councils, more help can be received from the state health department, and more health information can be given people. Survey of county health needs was also thought to be one of the best ways of increasing interest in health, no matter where these surveys are done. One other venture of the state rural health committee was the innovation of the "Question of the Week," to be run in conjunction with the "Old Doc Experience" columns in local newspapers throughout the state. These questions are along the general ideas of increasing interest in the health of rural families.

One other suggestion that has been made in regard to the rural health committee is that the state be divided into at least four different districts with subchairmen and subcommittees of the Rural Health Council in each of these areas, and with possibly only one general meeting a year for all of the members of the committee. In this way, each area of the state might be much better served, and attendance at meetings would certainly be improved as well as the general usefulness of the rural health committee.

Montana.—The Montana Rural Health Committee held a meeting on June 3 in Missoula, in conjunction with the Montana Public Health Association. The meeting was attended by about 100 people, most of them lay persons who were interested in health problems. It would be helpful if there could be a larger attendance of the doctors in the state. An occasional article still appears in the Montana Farmer-Stockman paper. More physicians should find time to send in articles.

Utah.—The past year has proved to be a challenging one for the Committee on Rural Health of the Utah State Medical Association. Constant and continuous effort seems required to fill the medical service needs of the rural areas. To fill the depleted ranks, new and qualified physicians have been located in Salina, Richfield, Monticello, Fillmore, Milford, and Panguitch. The executive secretary, Mr. Harold Bowman, and the Doctor Placement Bureau have done a great service in this field. Doctors are yet needed in Bountiful, Moab, St. George, Richfield, and Rich counties.

It is noticeable that, where there is a dearth of qualified physicians, the naturopaths and chiropractors are prone to move in. The resources of the rural health committee are much needed in this area. An opinion has been promised soon from the state Attorney General that is likely to result in the limitation of practice of naturopaths and chiropractors. Efforts are also continuing on the enactment of the basic science law by the state legislature. Specialized health services are now going periodically to most of Utah's rural areas in the following fields: rheumatic fever clinics; crippled children's clinics; child guidance clinics; speech correction clinics; tuberculosis case finding through portable x-ray services; and blood typing and donor services. These services have been made possible through the direction of the Utah State Department of Health and, in some cases, the Utah State College of Medicine. These agencies are doing excellent work in improving health services in rural Utah.

The work pioneered during the past two years in such areas as audiovisual research material, telecasts, newspaper articles, and speakers bureaus is continuing throughout the rural areas. A rural health telecast is planned for sometime during August. The national and regional councils on rural health continue to furnish up-to-date and pertinent material in this field. Continued expansion and improvement is needed in the following areas of rural health: reporting of communicable disease; grading and pasteurization of milk; chlorination and fluoridation of water; and postgraduate training for general practice.

The committee feels that the most effective method of efficiently managing the many and varied problems of health in the rural areas is through a health council organized on the local level by the lay people with staggered terms of office for continuity and long range planning. There is much to be done in this field.

Wyoming.—The Rural Health Committee in Wyoming has not been active this year. There have been no special problems referred to the committee, and no committee meetings were held.

Pacific Northwest Region

During the year the regional director has made two visits into the state of Idaho, where the state medical association has not accepted fully the program of the Council on Rural Health. They have an excellent chairman of their Rural Health Committee, Dr. M. F. Rigby of Rexburg, who has made a health survey of his own county but has not been able to carry his program into other parts of the state. The state legislature enlarged the state board of health to nine members (formerly 4). A special board of four was appointed by the governor of Idaho to direct the affairs of the new board of nine members. Dr. M. F. Rigby is a member of this board of four. The Idaho State Medical Association placed 30 doctors in the state during the past year.

The Oregon Rural Health Council has been active during the whole year. Several meetings, well attended, have been held. Committees have been appointed to arrange for the coming of the National Rural Health Conference in Portland in March, 1955. The Oregon State Conference for 1954 was held at Corvallis early in December. The meeting was well attended, having the largest enrollment, the largest number of physicians present, and the best rendered program since the state conference was organized. The Oregon State Medical Society placed 40 doctors during the year. However, quite a large number of doctors located in the state that were not placed by the medical society.

The regional director made only one visit to Washington and that was to attend its state health council meeting in April, 1955, at Pasco. The subject of this year's meeting was "Family Relations," which was well rendered. There was much enthusiasm, as usual, in this conference. Washington has many excellent leaders, and there are usually present at its state health council meetings the leaders in all the health professions as well as the Extension Department, the Farm Bureau, and the Grange.

SOUTHWEST REGION

In this region Arizona continues to be inactive in the field of rural health. Plans will be made for contacts in Arizona for the coming year. One visit was made by the regional director to Nevada, where he visited the co-chairman of the Committee on Rural Health at Las Vegas, who explained that he was not too clear as to what was the purpose and responsibility of the committee and felt that the regional director and Field Director of the Council on Rural Health should visit with the Nevada State Medical Association at its annual convention in Reno in the fall. Plans were made for a follow-up on this suggestion.

The work in California has developed in a most gratifying way. Following the formation of the California Council on Rural Health, which was initiated by the Committee on Rural Health of the California Medical Association three years ago, a rural health conference was held in Fresno in February. The attendance was about 400. Although not as many rural leaders attended the conference as had been hoped, there was a sufficient number to be encouraging, and the organizations participating believe that they will come in larger numbers in the years ahead.

The physician placement program, which is the responsibility of the Committee on Rural Health, has made good progress this year. The California population is increasing at the rate of about 400,000 per year. The physician population is increasing at the rate of 1,600 to 2,000 per year, and there are not many areas in which an acute medical care problem exists. It has been possible to keep abreast of these by staying in contact with county medical societies and groups of all types and by wide publicity throughout the state. A series of envelope inserts are sent out by county medical societies and members of the profession. These are supported by a series of newspaper advertisements promoting the adoption of a family or personal physician and getting health insurance and other things and have been carried out as a part of the public relations program, as well as the program of the Committee on Rural Health. All these things have brought about a close, working relationship with many rural organizations and groups, so that we now are in a position to expand into the field of health education in a way that will give broader coverage. There is still much work to do, but the committee has the confidence and understanding of lay groups, such as the Farm Bureau and Extension Service, and is proud to have developed this relationship out of the somewhat chaotic conditions that existed a few years ago.

THE COUNCIL CHAIRMAN AND STAFF

The Council on Rural Health has many requests for attendance at planned functions such as state rural health conferences and other similar meetings. All of the time of the staff and the chairman could probably be used in these kinds of meetings, but it is felt that enough of them are attended to demonstrate the Council's interest and to give some suggested direction. The chairman has devoted 70 days to Council business during the year. He has attended six state rural health conferences, six other group meetings with health interest, and spent several days at Prairie View, Texas, assisting in the teaching of a course in health education to Negro Agricultural Extension workers.

The Council continues to enjoy a close and cordial relationship with the organizations and individuals that make up its Advisory Committee. They are:

Mrs. Charles W. Sewell, Otterbein, Ind., formerly Administrative Director, Associated Women, American Farm Bureau Federation, representing the public at large.

Mr. Frank W. Peck, Managing Director, The Farm Foundation, Chicago.

H. E. Slusher, Chairman, Health Committee, American Farm Bureau Federation, Jefferson City, Mo. (A.F.B.F. membership, 1,609,000).

Mrs. Eugene R. Jones, American Farm Bureau Women's Committee, Hennessey, Okla.

Mr. Beatty H. Dimit, Chairman, Interim Health Committee, National Grange, Indiana, Pa.

Mr. Lloyd C. Halvorson, Secretary, Interim Health Committee, National Grange, Washington, D. C. (National Grange membership, 900,000).

Miss Gertrude Humphreys, State Leader, Home Demonstration Work, West Virginia University, and member of the Extension Committee on Organization and Policy, Morgantown, W. Va.

Mr. Marvin Anderson, Associate Director, Agriculture Extension Service, Iowa State College, Ames, Iowa.

Miss Humphreys and Mr. Anderson are designated by the Land-Grant College Association to represent the 48 state Extension Services in this capacity. These branches of the Land-Grant Colleges have a staff in each of the 3,100 agricultural counties of the United States.

Mr. Paul Johnson, Editor, *Prairie Farmer*, Chicago.

Mr. L. R. Neel, Editor, *Farm and Ranch*, Nashville, Tenn.

Mr. Johnson and Mr. Neel represent the Farm Magazine Editors Association.

In addition to asking this group to assist in preparation of the annual conference program, an extra day is now spent with them getting their critical appraisal of needs and progress. It is the Council's custom to meet with the entire boards of certain of these organizations. During the past year it has met with two—the National Grange and the Farm Magazine Editors. This is a most helpful contact, since it provides an opportunity to discuss what each specific organization believes to be its greatest need.

During this year the Council has developed another and new relationship in educational endeavor. It has long felt the need for getting in a position with educational institutions where it could assist in the teaching of a sound philosophy of medical care and practice plus the need for individual and community responsibility for health. There are five schools that give special refresher courses for Agricultural Extension workers, and the Council was able to supply a teacher for one of these this year whose philosophy it knows to be sound. The Council believes this to be a highly worthwhile endeavor and recommends that it be continued and developed in other colleges as fast as feasible and practical. The Council is gratified to see the close cooperation that has developed between the state medical associations and the agricultural extension services.

The Field Director's activities during the past year have been a continuation of things done since the work started. He has worked with all departments at Association headquarters in the development of materials and ideas that particularly fit into the operations of the Council with rural groups. For example, with the Bureau of Health Education, the Field Director prepared basic information for a series of 13 television scripts that are being completed and mailed to state medical associations, rural health committees, and extension services throughout the country. With the Council on Foods and Nutrition, many of the nutrition programs in the states have been discussed and evaluated, together with materials to go to some of these states that would help in the projection of their activities. The Field Director has been in consultation with the Council on Medical Education and Hospitals concerning preceptorship programs and has taken information from that Council to the states and individuals interested in the various activities.

The Field Director has continued to travel extensively in connection with contacts within the states. These visits are guided according to needs or from the standpoint of interest within the state. Although it is not possible to get into all the states each year, visits are arranged so that not too long a time elapses between contacts. In these contacts within the states, the medical associations are visited first and all arrangements are made through them.

The Field Director also has had the pleasure of addressing many state councils of home demonstration clubs. These clubs are made up of locally organized groups of farm and village women, whose primary purpose is to study improved homemaking techniques. They have become affiliated into county federations or councils of home demonstration clubs. A few years ago these were broadened to state councils. In recent years the National Council of Home Demonstration Clubs has been growing steadily and probably will eventually be an important force in rural life in America.

The Field Director has contacted this year the radio farm directors in the various cities visited. This contact, it is felt, is bringing about a much better relationship with a great outlet for the information the Council has to give. The Council office has acted as a clearing house of information pertaining to the health services of all organizations and interested agencies in rural areas. In addition to regular routine activities, it continues to maintain a close working relationship with state medical societies and state committees handling rural health matters, as well as national agricultural organizations. This includes attendance at national meetings of farm organizations, state rural health meetings, and special assignments delegated by the Chairman and members of the Council.

The mailing list of the Council's Parade of Progress Newsletter has been enlarged to approximately 1,300 due to increased interest in this exchange of information. A new pamphlet giving the history, purpose, and activities of the Council on Rural Health was prepared and given wide distribution, in response to many requests from physicians and lay groups for a descriptive leaflet on the work and philosophy of the Council.

Report of Council on National Defense

This report covers the activities of the Council on National Defense for the period beginning Oct. 1, 1954, and ending June 30, 1955.

Administrative Activities

A number of changes in personnel have occurred during this reporting period. The Council is grieved to report the sudden death of its chairman, Dr. James C. Sargent of Milwaukee, on Oct. 7, 1954. Dr. William J. Baker resigned as a member of the Council on Oct. 19, 1954, for reasons of health. The position of secretary to the Council was vacated in August, 1954, by transfer of Mr. C. Joseph Stetler to the position of Director of the Law Department of the Association. The new secretary, Mr. Frank W. Barton, assumed his duties on Oct. 18, 1954.

In December, 1954, the Board of Trustees named Dr. Harold S. Diehl as chairman of the Council for a five year term ending in December, 1959, and reappointed Dr. Richard L. Meiling to membership for a similar five year term. The Board also appointed Dr. Carroll P. Hungate to fill the unexpired term of Dr. William J. Baker, ending in December, 1955, and Dr. R. A. Benson to fill the unexpired term ending in December, 1957, of the late Dr. James C. Sargent.

Committees of the Council

At a meeting with the Board of Trustees on Feb. 5, 1955, the chairman of the Council recommended that two permanent committees be established. He pointed out that the responsibilities of the Council generally fall into two areas—civil defense matters and military medical affairs. Because of the increased scope of activities in these two areas within the past few years, the chairman felt that such a division of the work would permit better deliberation of problems and recommendations and result in a more effective discharge of the responsibilities of the Council. The recommendation was approved by the Board.

A Committee on Military Medical Affairs and a Committee on Civil Defense were created, and the Board of Trustees designated Dr. Richard L. Meiling as chairman of the Military Medical Affairs Committee and Dr. Harold C. Lueth as chairman of the Civil Defense Committee. In addition, the Board selected Drs. Reuben B. Chrisman Jr., and Joseph B. Copeland as members of the Military Medical Affairs Committee and named Drs. R. A. Benson and Perrin H. Long as Council members to serve on that committee. Selected for membership on the Civil Defense Committee were Drs. Cortez F. Enloe Jr. and Charles W. Steele, together with Drs. Stafford L. Warren and Carroll P. Hungate from the Council membership.

Military and Selective Service Activities

The need for civilian medical participation in military medical planning has been clearly indicated for a long time. In fact, as far back as December, 1945, the House of Delegates was actively concerned with military medical affairs. At that time it appointed a committee to study the experiences of medical officers during World War II with special reference to opportunities for study, research, actual treatment of the sick, rotation of medical assignments, and use of medical officers for nonmedical duties. It is significant to note that, in its findings, this special committee pointed out that "the development of a strong and attractive medical service in the Army, Navy, Public Health Service, and Veterans' Administration is in the best interests of the public welfare and the development of such services depends on the confidence and intimate collaboration of the medical profession of the Nation." Since that time a number of changes have taken place. In 1947 Congress enacted legislation that established the various governmental agencies now known as the National Security Council, the Office of Defense Mobilization, the Department of Defense, the Department of the Army, the Department of the Navy, the Department of the Air Force, the Joint Chiefs of Staff, and the Civil Defense Administration. The War Department was abolished, and the position of the Navy Department as well as that of the Secretary of the Navy were affected by this reorganization in their Cabinet status. Between 1950 and 1953 the United States Armed Forces were engaged in the United Nations action to suppress the hostilities in Korea. Since 1945, the program for the medical care of dependents of military personnel in military hospitals and with military physicians has increased several hundredfold. The veteran population of the United States has greatly expanded in these past 10 years, with a corresponding expansion in the medical care program of the Veterans Administration. In 1950, with the outbreak of the Korean hostilities, physicians were for the first time placed in a special category, subject to special draft legislation, for obligated service in the Armed Forces, and this condition has not been changed, although the hostilities have been officially concluded for more than two years.

The Council on National Defense of the American Medical Association is a direct outgrowth of that special committee created 10 years ago by the House of Delegates to provide better understanding on the part of all concerned, with reference to the utilization of the medical and allied health professions to provide for the entire nation as well as to meet the needs of the national defense forces.

The United States is still faced with a critical military medical manpower situation. Today, more than two years after the end of hostilities in Korea, the continued peacetime mobilization of more than 3 million men in the armed forces, dispersed throughout all areas of the world and under conditions that have never previously existed between the United States and other nations, such as the NATO agreements and the security forces that have been stationed within the geographical boundaries of sovereign nations, demands the greatest statesmanship on the part of medical as well as military leaders to solve the problem of this military medical manpower situation. The need for planning an attractive, long-range career program for the medical services of the armed forces is acute and has not received adequate consideration from the responsible military authorities or from Congress. Today, 48% of the authorized regular medical officer positions in the medical services of the armed forces are unfilled, and the resignations of career medical officers continue in a manner to cause concern to all.

The American Medical Association was most active in bringing to the attention of government officials the need for civilian medical advice and counsel at the highest level of the national defense organizations. This resulted in the establishment of the Civilian Medical Advisory Group to the Office of Defense Mobilization, the Director of Selective Service, and the Secretary of Defense as well as the establishment of the position of Assistant Secretary of Defense for Medical and Health Affairs. The basic problem as recognized by the medical profession in 1945 at the conclusion of World War II still remains to be solved. However, advice and counsel is only worthwhile if and when translated into policies and programs throughout the several defense agencies.

Career Incentive Program for Medical Officers

The Council for several years has studied such matters as the military procurement program for physicians, equalization pay, incentive policies, utilization of medical officers, and development of graduate educational programs for physicians on active military duty. It has considered the need for a solution to the provision of an adequate qualified career officer program for the military medical services of paramount importance. In the past few years, the Council has suggested, and the Board of Trustees has presented to the Department of Defense on several occasions, recommendations on the subject. As late as May, 1955, the Council again recommended to the Board of Trustees that a civilian board or commission at a high government level should be appointed to study, review, and make recommendations on this matter and that this critical problem be brought to the President of the United States. Favorable action was taken by the Board, and just recently the Department of Defense announced a proposed career incentive program for medical officers.

The proposed program would (1) authorize longevity pay credit for the four postgraduate years spent in medical schools and for the one year spent in medical internship, (2) authorize upgrading of officers now on the active list to reflect the one year increase of constructive service credit, and (3) authorize special contract bonuses ranging from $600 to $1,800 per year for three to nine year contracts. A draft legislative bill has been submitted to the Bureau of the Budget to accomplish these proposals. Other items of the program include (1) improved assignment policies, (2) promotion policy revision, (3) educational subsidy programs for junior and senior medical students, and (4) other professional motivation and prestige policies. The Council plans to study this proposed program at its next meeting and thereafter will make a report to the Board.

"DOCTOR-DRAFT" LAW

Since passage in September, 1950, with subsequent extensions, the "Doctor-Draft" law has plagued the medical profession. The discriminatory features of this law, coupled with the resulting hardship and inequities in its application, have been the source of serious and not infrequent problems considered by the Council. A major portion of the Council's activities have dealt directly with the "Doctor-Draft" law and its administration.

On two separate occasions the Council prepared reports for the Board of Trustees on the special draft act. These reports discussed the historical development of the law and the reasons for the previous positions taken by the Association at the time of its initial passage and subsequent extensions. The Council recommended that the "Doctor-Draft" act not be extended beyond June 30, 1955, since it believed that a sufficient number of physicians could be secured to meet the legitimate needs of the armed forces through alternative methods. This recommendation was based, in part, on the fact that (1) hostilities had terminated in Korea and there no longer existed an emergency situation, (2) the Department of Defense had announced a reduction in planned military strength to approximately 2,900,000, (3) a reduction of the ratio of physicians to troop strength had been established, and (4) there was an increasing number of physicians obligated and acceptable for military service under the basic Selective Service Act. The Council also furnished assistance in the preparation of testimony presented to House and Senate committees at the time hearings were conducted on the extension of the "Doctor-Draft" law.

Despite these and other coordinated efforts of the Association, the special draft law was extended. Under Title II of Public Law 118, 84th Congress, June 30, 1955, the doctor-draft was continued for two more years until July 1, 1957. In addition, the $100 per month equalization pay for physicians and others on active military duty was extended until July 1, 1957. The Council had previously recommended and strongly urged that this pay provision be retained in force. The new law contains the same four priorities for the call-up of physicians to active duty as was contained in the old law. It however contains two major changes. First, it exempts from military service any physician or dentist, 35 years of age or older, whose application for a commission in one of the armed forces as a physician or dentist is or has been rejected on the sole ground of a physical disqualification. Secondly, the age limit for call-up of special registrants was lowered from 51 to 46 years of age. After July 1, 1955, physicians who have reached their 46th birthday are exempt from involuntary induction in the armed forces. The law presents several problems, from the standpoint of administration, that must be clarified through implementing regulations.

SURVEY OF DISCHARGED MEDICAL PERSONNEL

A survey of physicians being released from active military service has been conducted by the Council since July, 1952. The survey is primarily designed to obtain information on the utilization of physicians and medical staffing conditions in the armed forces. The questionnaire also solicits comments and suggestions concerning the improvement of the military medical corps as well as ways and means whereby organized medicine can be of greater assistance to military physicians. From June, 1952, to June, 1955, the Council sent out 13,137 questionnaires of which 9,440 were filled out and returned. Every six months, summary results of the survey are compiled and reported in THE JOURNAL. Similar reports are likewise furnished to military representatives. These opinions concerning military practice have been a guide for discussions with the military departments. The latest survey results cover the period from July 1 to Dec. 31, 1954, during which time 2,373 forms were mailed and 1,500 returned.

The Council began using a revised questionnaire form on July 1, 1955. An analysis of replies of previously returned forms indicated that some of the questions could result in unobjective answers. Some of the old questions were deleted and others reworded for the new form.

PLACEMENT ASSISTANCE

For three years the Council has furnished assistance to physicians being released from active military service by providing information concerning available civilian medical opportunities. This program has been well received by participating physicians. As of June, 1955, the Council had sent letters outlining this program to 11,248 physicians and received 3,166 replies, of which 2,112 were from physicians who requested and were given placement assistance. The Council has also continued to assist state volunteer medical advisory committees to the Selective Service System in replacing deferred physicians who have a military obligation.

MEDICAL CARE FOR DEPENDENTS OF SERVICE PERSONNEL

In February, 1955, the Commission on Organization of the executive branch of the government, in its report on federal medical services, indicated the enormous growth of medical care provided for dependents of military personnel. It pointed out that in 1948 there were 42,000 babies born in military hospitals in the United States and that in 1953 the number had increased to over 145,000. The report stated further that on an average day in 1953 there were 6,300 dependents in military hospitals and that over 23,000 outpatient treatments were given daily to dependents. At the hearings before the House Armed Services Committee on the bill to extend the "Doctor-Draft" law, a representative of the Department of Defense testified that the dependency care program today is so tremendous that it is a burden that actually is interfering with the basic military mission of the armed forces.

At its April meeting, the Council considered this complex and difficult problem and submitted a report to the Board of Trustees recommending that the position of the Association be reaffirmed in that, if Congress determines such health services are to be a part of the national policy and if "dependents" are clearly defined by Congress, then, such medical care should be provided by civilian physicians in civilian facilities except in the overseas areas and in those areas in the United States where adequate civilian services and facilities are not available. The Council also recommended that the Association actively oppose S. 934, H. R. 2685, and H. R. 3009, 84th Congress, as they pertained to the dependent medical care program.

A request was received in April, 1955, from the Health Resources Advisory Committee to the Office of Defense Mobilization asking the Council to conduct a study to determine the possibilities of utilizing civilian physicians in certain areas to render services now performed by physicians in uniform. In June, the Board of Trustees authorized the Council on Medical Service and the Council on National Defense to conduct a joint investigation with the objective of implementing the basic request and to make a report of their findings. Field trips have been made and considerable data has been obtained in this study, from both military and civilian medical sources. The two Councils are continuing this study, and a report will be submitted at a later date.

LIAISON WITH PHYSICIANS ON ACTIVE MILITARY DUTY

The Council has continued to prepare each month an article entitled, "A Message from the A. M. A." for publication in the *United States Armed Forces Medical Journal*. This activity was started in January, 1954, to establish close liaison between the Association and physicians in uniform. During this reporting period, these articles have covered such subjects as the summaries of survey of physicians leaving military service, interpretation and administration of the Doctor-Draft Law, medical care for dependents of military personnel, summary of laws enacted by the 83rd Congress of interest to the medical profession, military manpower program, course on medical care of atomic casualties, and reports on federal medical services.

CIVIL DEFENSE ACTIVITIES

Radioactive fall-out became a new and frightful term early in 1955, when the chairman of the Atomic Energy Commission first publicly disclosed that the thermonuclear bomb could produce lethal fall-out over a 7,000 square mile area. Under proper conditions, the bomb burst could seriously threaten the lives of nearly all the persons in that area who did not take protective measures. News accounts of this possible horrible fate created great interest for civil defense preparedness among organizations and citizens alike, which had long been critically needed. It likewise presented tremendous medical and social problems. More recently that atmosphere of public awareness has been diluted somewhat by the recent "peaceful coexistence" discussions and negotiations between the Big Four powers. Regardless of the ultimate results of these peace efforts, the need for organized civilian defense to cope with natural disasters and emergencies has been clearly demonstrated. The recent hurricanes and floods in the northeastern states, recent explosions, and large-scale fires are all examples of major disasters. The need for an effective system of civil defense is surely beyond dispute. This is a challenge to the medical profession. It is the responsibility of the individual physician.

NATIONAL MEDICAL CIVIL DEFENSE CONFERENCE

On June 4, 1955, the Council sponsored in Atlantic City, N. J., its third National Medical Civil Defense Conference. Attendance has increased from 80 persons at the first conference to over 200 participants at Atlantic City. The conferees consisted chiefly of practicing physicians and came from every section of the country. Other health organizations and civil defense groups also took part in the one day affair. The Board of Trustees requested the Council to secure from all sources as much data as possible on radioactive fall-out for dissemination to the medical profession. This prompted the Council to feature this subject at the conference. Several speakers discussed radiological defense measures, fall-out contamination of food and water, and effects of residual radiation. Senator Estes Kefauver outlined the civil defense study being made by a Senate subcommittee and explained some of the federal responsibilities and activities in this field. The proceedings of the conference are in the process of publication for distribution to all in attendance.

FEDERAL CIVIL DEFENSE ADMINISTRATION

The Council reported to the Board of Trustees on Nov. 16, 1954, that it supported in principle the House of Delegates Resolution No. 36, introduced by Dr. Paul D. Foster of California. That resolution called for the establishment within the Department of Defense of a Department of Civil Defense, with equal status with the departments of the Army, Navy, and Air Force, to be headed by a secretary with representation on the Joint Chiefs of Staff Board. In acting on this resolution, the Board recommended to the House of Delegates that the health division of the Federal Civil Defense Administration be reexamined by the administrator with a view to elevating it to a status commensurate with its obligations and responsibilities and that decision as to the eventual placement of that administration within the framework of the government should be left to the Congress.

The Council has continued to maintain close liaison with the FCDA, particularly its health office. It has been represented at all regular Council meetings. The Council recommended to the Board that the FCDA be so altered that the director of the health office will have a station equivalent to that of the deputy administrator and thus be directly and immediately responsible to the administrator without the interdiction of subordinate personnel. Another action of the Council was a resolution forwarded to the Board urging that proposed federal legislation to authorize the disposal of surplus property for civil defense purposes be enacted.

An important study now being conducted by the Council's Committee on Civil Defense pertains to effective utilization of the 200-bed improvised hospital for local training and staffing purposes including the choosing of ultimate sites for these hospitals. Previously the Council had urged that FCDA be authorized to procure and stockpile these units in sufficient quantity for such purposes. The FCDA now has on hand 200 improvised hospitals; 531 are currently being assembled, and another 100 are on order.

PUBLICATIONS

The Council prepared a bibliography of pamphlets and articles on the medical aspects of civil defense. It contains a listing of titles of articles as well as an alphabetical listing of authors. In the past year the Council has reviewed current articles and plans to revise the bibliography by bringing it up to date. The Council also publishes a civil defense review that is distributed bimonthly. This publication contains information on the latest civil defense developments. It is sent to over 1,200 persons, including the chairmen and members of state emergency medical service committees.

COUNTY MEDICAL SOCIETIES CIVIL DEFENSE ORGANIZATION

On Oct. 30 and 31, 1954, the Council provided staff and clerical assistance to a medical civil defense conference held in Chicago by the County Medical Societies Civil Defense Organization. This year the Council is arranging to sponsor the sixth conference of this group. It is scheduled for Nov. 12 to 13 in Chicago.

Members and the secretary of the Council have participated in a number of civil defense meetings designed to facilitate and expedite local level planning. The Council has continued to maintain close and constant liaison with federal and state governmental agencies and with allied health organizations. All have been extremely cooperative and helpful to the Council in carrying out its responsibilities.

APPRECIATION

The Council wishes to express its appreciation for the cooperation and assistance it has received from the Board of Trustees and officers of the Association, from allied professional organizations, and from agencies of the federal government with which it has worked during the period covered by this report.

Report of Council on Mental Health

The Council on Mental Health has held three regular meetings, in September, 1954, and January and April, 1955. By action of the Board of Trustees, the Committee on Mental Health was given Council status as of Jan. 1, 1955. In December, 1954, Dr. Maurice Levine's term of office on the Council expired. Because of other heavy responsibilities, he was unable to continue and was replaced by Dr. George E. Gardner, Boston.

A new subcommittee of the Council, the Committee on Narcotic Addiction, was appointed in March, 1955, and consists of three members: Dr. Robert H. Felix, chairman, director of the National Institute of Mental Health, Bethesda, Md.; Dr. Harris Isbell, director of research, Addiction Research Center, Public Health Service Hospital, Lexington, Ky.; and Dr. Jerome L. Leon, medical director, American Medical Center at Denver, Spivak, Colo. This subcommittee was set up for the specific purpose of making a detailed examination of the present status of narcotics and narcotic addiction as it relates to medical practice in the United States and to formulate for presentation to the Board of Trustees an official Association point of view on the whole problem of narcotic addiction. The committee members have already made some preliminary study of this problem and will hold their first official meeting in conjunction with the Council on Mental Health in September, 1955, at which time the problem will be discussed with experts from government and other related and interested organizations.

LICENSURE OR CERTIFICATON OF CLINICAL PSYCHOLOGISTS

The Council on Mental Health has held further deliberations concerning the American Medical Association point of view on this matter with representatives of the American Psychological Association and the American Psychiatric Association. It is noted that the American Psychiatric Association now favors legal certification of psychologists, which differs from the present Association point of view. This matter will be further discussed in open session at the November, 1955, meeting of mental health representatives of the state medical associations at the headquarters office.

CONFERENCE OF MENTAL HEALTH REPRESENTATIVES OF STATE MEDICAL ASSOCIATIONS

On Sept. 17 and 18, 1954, at Association headquarters, the Council sponsored a Conference of Mental Health Representatives of State Medical Associations. Representatives of 36 state medical associations were in attendance at the conference. Delegates to the conference were welcomed by Dr. Elmer Hess, President-Elect of the Association. The conference considered in general the problems now affecting the committees on mental health of the state medical associations. The problems of three of the associations, Virginia, Texas, and Connecticut, were presented in detail with considerable discussion following from the floor. The conference also considered how psychiatric associations at local levels can cooperate with state and county medical associations, the neuropsychiatric program of the Veterans Administration, and the Woman's Auxiliary in the over-all mental health program. The conference also considered the present mental health program of the Council of State Governments and reviewed methods whereby the National Institute of Mental Health could work more closely with state and county medical associations. Detailed proceedings of this conference were published by the Council and distributed to all state medical associations. It was unanimously agreed by representatives present that this conference had been extremely useful in bringing about a cooperative relationship between state medical associations and the national Association, and there was unanimous agreement that such a conference should be held annually. A second conference is scheduled for November, 1955.

JOINT COMMISSION ON MENTAL ILLNESS AND HEALTH, INC.

During the past two years the Council has been working closely with the American Psychiatric Association and with representatives of some 20 other organizations of national import toward the creation of a Joint Commission on Mental Illness and Health. The results of this intensive effort have come to fruition early this year with the formation of the Joint Commission on Mental Illness and Health, Inc. The joint commission has been incorporated in the District of Columbia with an original board of trustees of 15 members. The organizations represented on the present board of trustees are the American Medical Association; the American Psychiatric Association; the National Education Association; the American Association of Psychiatric Social Workers; the American Hospital Association; the American Psychological Association; the Coordinating Council of the American Nurses' Association; and the National League for Nursing.

The organizations presently represented in the joint commission besides those represented on the board of trustees are the American Bar Association; the Council of State Governments; the American Association of Psychiatric Clinics for Children; the National Institute of Mental Health; the Central Inspection Board of the American Psychiatric Association; the Children's Bureau; the National Association for Mental Health; the Social Science Research Council; the American Association on Mental Deficiency; the American Occupational Therapy Association; the Veterans Administration; and the Joint Commission on Accreditation of Hospitals. Five members of the American Medical Association have been named to the board of trustees of the joint commission. They are Drs. Leo Bartemeier, Lauren Smith, Hugh Carmichael, Walter Baer, and M. Ralph Kaufman.

The objectives and purposes of the joint commission are: (1) to study mental illness and mental health and the medical psychological, social, economic, cultural, and other factors that relate to the etiology and course of development of mental illness and to the advancement of mental health; (2) to study ways and means of furthering the discovery, development, and application of all effective methods, practices, and therapies for the diagnosis, treatment, care, and rehabilitation of the mentally ill and retarded and for the promotion of mental health; (3) to study and advance ways and means of recruiting and training adequate personnel for the diagnosis, treatment, care, and rehabilitation of the mentally ill and retarded and for the promotion of mental health; (4) to survey all aspects of the problems of mental illness and mental health and to formulate comprehensive plans and programs for the improvement of all methods and practices for the diagnosis, treatment, care, and rehabilitation of the mentally ill and retarded and for the promotion of mental health; (5) to analyze and make available to the Congress, the Surgeon General, the governments of the several states, and other interested public and private associations, organizations, agencies, and persons in annual and interim reports, or otherwise, the results of all studies and surveys mentioned in the preceding paragraphs.

It is notable that the need for such a commission was also realized by the federal government, which has proposed and passed a law known as the National Mental Health Study Act of 1955. This act sets up a fund of $1,250,000 to be allocated to one or a group of professional organizations that will carry out the kind of study proposed in the act, which has essentially those objectives and purposes for which the joint commission was formed. The joint commission is now preparing a request to the National Institute of Mental Health for the funds set up in the National Mental Health Study Act of 1955 and hopes to receive these funds in early 1955 to start the actual survey work of the commission. The National Mental Health Study Act itself was strongly supported by the American Medical Association in its passage through Congress.

The first meeting of the board of trustees of the joint commission will be held in September, 1955, and the first meeting of the over-all joint commission will be held in October, 1955.

COMMITTEE ON ALCOHOLISM

The Subcommittee on Alcoholism of the Council was enlarged to a membership of five this year by the addition of Dr. Harold Himwich of the Galesburg State Research Hospital in Illinois and Dr. Jackson A. Smith of the Nebraska Psychiatric Institute in Omaha. The committee has worked during the past year toward the objectives of its 19 point program for work at national, state, and county medical society levels. The committee has also worked with the Bureau of Exhibits of the American Medical Association to set up an exhibit on alcoholism that presents the current medical point of view concerning treatment of alcoholic patients. This exhibit was first presented in the Scientific Exhibit at the June, 1955, meeting of the Association at Atlantic City. It has received considerable favorable comment. The exhibit is now available for presentation at state medical society meetings, and there have been many calls for its use by outside groups.

At the present time the Committee on Alcoholism is preparing a booklet on modern treatment of alcoholism for distribution to physicians generally with the purpose of enabling more and more general physicians to accept and treat the alcoholic patients. The committee has acquired the Yale Abstract Archives of Alcohol Literature, which is now being set up at the headquarters office.

MASS MEDIUMS

During the past year a mass mediums pilot study has continued to be sponsored by the Council. The study is now being carried out by Dr. Arthur J. Brodbeck, assistant professor of psychology at Boston University; Dr. Nathan Maccoby, director of the division of research of Boston University School of Public Relations and Communications, and Dr. Eleanor Maccoby, lecturer in the department of social relations and a research associate in the Laboratory of Human Development of Harvard University. Present indications are that the pilot study will be completed and a report presented by the end of 1955. A preliminary report, "Strategy for Research in Mass Media," prepared by Dr. Eleanor Maccoby has been received by the Council.

HEADQUARTERS

Since the Committee on Mental Health has assumed Council status, the work of the headquarters office has been steadily increasing. There has been an increasing demand for consultation and advice from the Council to various state association committees on mental health on all matters that pertain to the progress of mental health, the development of mental hygiene centers at state and county levels, reference to state laws concerning the mentally ill, and the expanding work of the committees on mental health of the Woman's Auxiliary. The headquarters office has been enlarged with the addition of an administrative assistant to the Secretary.

FUTURE PLANS

In all probability, during the coming year, a great part of the work of the Council will be concerned with the further development of the joint commission and activation of its program until it gets formally under way. The Council is also considering the development of an exhibit on narcotics through its Subcommittee on Narcotic Addiction and is planning a panel discussion on psychiatry in American medicine for the General Scientific meetings at the 1956 annual meeting of the Association.

Report of Council on Scientific Assembly

The Council on Scientific Assembly held five meetings during the year in preparation for the Clinical Meeting in Miami and the Annual Meeting in Atlantic City. Among numerous subjects discussed, the following items are noted.

Publication Rights of Exhibit Photographs.—The Council discussed the rule of the Scientific Exhibit regarding publication rights of photographs of exhibits. It was recommended that this rule be amended to read as follows:

> Publishing the detailed Scientific Exhibit becomes the exclusive right of the Association, although an exhibitor may be permitted to publish his exhibit elsewhere than under the American Medical Association copyright if he will direct his request to the Editor of the American Medical Association.
>
> Exhibits shown at the Annual Meeting will be reproduced in full in black and white in an American Medical Association sponsored publication or released to the exhibitor for his own disposition.

Publication of Scientific Exhibits—1955.—The managing editor of the Association's specialty journals selected 150 exhibits from the Atlantic City Meeting for publication in a volume entitled Scientific Exhibits—1955. Grune & Stratton, Inc., New York, will be the publisher. Other exhibits will continue to appear in the specialty journals.

Attendance at Section Meetings.—The problem of attendance at lectures received much discussion. While the total attendance at annual and clinical meetings is increasing, the attendance at section lectures is not increasing proportionately and in some cases it is declining. The competition of scientific exhibits, color television, medical motion pictures, and other features are apparently factors. The Council is studying the matter.

Deadline for Requests to Read Section Papers.—The Council, on the advice of the section secretaries, made Dec. 15 the deadline for receipt of requests to read papers before the sections of the Scientific Assembly.

Requests for New Sections.—A request for a section on Angiology was considered, and the Council recommended that it be denied, since the subject is covered in existing sections. A request for a section on public health was taken under advisement for further consideration, and a request for a section on civil defense was tabled.

Panel on Mental Health.—A request for a panel on mental health, under the auspices of the Council on Mental Health of the American Medical Association, was approved for the General Scientific Meetings at the Chicago Annual Meeting.

Preview of Scientific Meetings.—A member of the Council proposed a preview as a substitute for the General Scientific Meetings presenting certain highlights of the meeting, including new developments. The matter was taken under advisement for further consideration.

Fracture Committee.—Dr. Ralph G. Carothers, Cincinnati, was named chairman of the Fracture Exhibit Committee to take the place of Dr. Gordon M. Morrison, Boston, who resigned because of illness. Dr. Harry B. Hall, Minneapolis, was named the third member of the committee, and Dr. Morrison was appointed member emeritus.

Clarification of Bylaws.—The Council requested clarification of certain bylaws pertaining to the Scientific Assembly. The chairman and secretary of the Council met with the Council on Constitution and Bylaws regarding the matter.

Ciba Reports.—The Council approved the publication by Ciba Pharmaceutical Products, Inc., Summit, N. J., of abstracts of papers and exhibits presented at the Miami Clinical Meeting.

Closer Affiliation with Sections.—The Council on Scientific Assembly used every opportunity to affiliate itself more closely with the sections. The Council was host to the section secretaries at an all day meeting in Chicago in October, 1954, and was host to the section representatives to the Scientific Exhibit at a dinner in Atlantic City. At both the Miami and Atlantic City meetings, members of the Council were guests of the section delegates at breakfast.

Council Chairman.—Dr. Alphonse McMahon, St. Louis, was elected chairman of the Council on Scientific Assembly to succeed Dr. Henry R. Viets, Boston, who resigned as chairman after serving eight years in that capacity. The Council voted its appreciation to Dr. Viets for carrying the Council through a period of reorganization and making it one of the outstanding Councils of the Association.

MIAMI CLINICAL MEETING

The Miami Clinical Meeting was considered most successful. All scientific activities were housed in one building at Dinner Key, where lectures, color television, motion pictures, and scientific exhibits were presented simultaneously and continuously. The Local Committee on Arrangements, of which Dr. Homer L. Pearson, Miami, was chairman, was outstanding in its over-all concept of program arrangement as well as in attention to final details.

The lecture program, arranged under the auspices of Drs. Ralph W. Jack and Ralph S. Sappenfield, covered a variety of subjects, including general practice, medicine, neuropsychiatry, obstetrics and gynecology, pediatrics, and surgery. Color television, originating in Jackson Memorial Hospital, was arranged under a committee of which Dr. L. W. Dowlen, Miami, was chairman. Smith, Kline and French Laboratories of Philadelphia were the sponsors. The motion picture program, arranged by the Association's Committee on Motion Pictures and Medical Television, included 15 selected films, each of which was shown once each day during the week. A special film program on Tuesday evening at the McAllister Hotel included two premiere showings and brought out a capacity audience.

The Scientific Exhibit was arranged primarily for the physician in general practice. There were 80 exhibits with continuous demonstrations throughout the week by leading teachers and investigators of the United States. Special features included the Special Exhibit on Fractures and manikin demonstrations on problems of delivery.

ATLANTIC CITY ANNUAL MEETING

The Atlantic City Annual Meeting had an exceedingly full program with lectures and exhibits by the 21 sections of the Scientific Assembly, together with complete programs of color television and motion pictures.

General lectures were given on Monday with section lectures beginning Tuesday and continuing until Friday noon. There were 275 lectures, round tables, and panels conducted simultaneously in 14 meeting rooms in Convention Hall and five adjacent hotels. Most of the sections held combined meetings at one time or another with other sections, the largest group being five sections. Attendance varied from a high of 1,904 to a low of 35 in different groups. Four sections held meetings on Friday morning with good attendance.

The Scientific Exhibit was held on the lower level of Convention Hall. Interest was constant and continuous with more than 20,000 people entering the Hall in one day. There were 350 scientific exhibits chosen from more than 500 applications for space. The continuous demonstrations during the long days of the week emphasized the unselfishness of the leaders of medicine in sharing their knowledge with their fellow physicians.

The section representatives to the Scientific Exhibit were most cooperative in assisting with groups of exhibits dealing with their respective specialties, and several of them arranged special features. The Section on Pathology and Physiology presented an outstanding display of fresh tissue pathology; the Section on Diseases of the Chest arranged a special exhibit on pulmonary function testing; and the Section on Military Medicine presented a "flying infirmary" that was set up on the beach in front of Convention Hall. Special interest was shown in physical examinations arranged by the Section on General Practice. More than 1,000 physicians took advantage of the opportunity to have chest x-rays and electrocardiograms. The chest x-rays showed 84% normal, with evidence of disease in nearly 16%. Similarly, the electrocardiograms brought out unsuspected findings, two physicians being removed from their hotels to the hospital in the middle of the night on the evidence presented in the electrocardiogram tracings. Other features of the Scientific Exhibit included an exhibit symposium on arthritis and rheumatism; an exhibit symposium with question and answer conferences on diabetes; and a general information center designated as Queries and Minor Notes.

Medal awards were made to six exhibits, while section awards included 20 certificates of merit and 24 honorable mentions. Dr. William B. Condon, Denver, was chairman of the Committee on Awards. Admission to Convention Hall was restricted on Wednesday morning to physicians. This made little difference with the attendance in the Scientific Exhibit, the admission figures at noon totaling practically the same as on the preceding day. Color television was sponsored and produced by Smith, Kline and French Laboratories, Philadelphia. It originated at the Hospital of the University of Pennsylvania, Philadelphia. There were 27 presentations shown each morning and afternoon. Motion pictures were arranged and shown by the Committee on Motion Pictures and Medical Television, with 41 films, most of which were presented twice during the week. A motion picture symposium on hernia was presented Wednesday evening in Haddon Hall and attracted a large crowd in spite of bad weather.

Report of Bureau of Exhibits

The Bureau of Exhibits includes varied activities in which the personnel divides its time with arrangements for the annual and clinical meetings under the Council on Scientific Assembly.

ASSOCIATION EXHIBITS

Association exhibits, depicting activities in which various departments of the Association are interested, have been developed with the assistance of the councils and bureaus of the headquarters group. The total exhibits available for loan number 47, for which 267 requests were complied with during the year for a total showing of 11,881 days. It was impossible to fill 66 other requests because of prior reservation of the exhibits. Exhibits were shown in 34 states, as well as Alaska and Puerto Rico. Several of the exhibits have become travel weary and have been discontinued. Replacements are made when possible, either bringing the subject up to date with new material or choosing a new subject. Subjects on specific diseases such as cancer, tuberculosis, and poliomyelitis, which are covered by national agencies, are not included in the list of Association exhibits, since this would be a duplication of effort.

Medical Exhibits.—The Bureau has continued its work in graduate medical instruction with exhibits at meetings of 15 state medical societies. In addition, exhibits were shown at meetings of 20 scientific organizations allied to medicine. It is customary to have a demonstrator, usually from the headquarters staff, accompany these exhibits, in the same way that the American Medical Association requests a demonstrator for each exhibit in the Scientific Exhibit at the annual and clinical meetings.

Health Exhibits.—The past year has witnessed an acceleration in health fairs and expositions by county medical societies and other groups, and the Bureau has participated in them, on invitation, whenever possible. Participation in activities sponsored by groups other than medical societies is done only with the advice and consent of the county or state medical society. New exhibits under construction or contemplated include more information on normal physiology and anatomy.

Miami Health Fair.—The Miami Health Fair was presented at the close of the Clinical Meeting in Miami with the cooperation of the Dade County Medical Society. More than 80 exhibits for the public, with an extensive motion picture program, attracted 43,000 people in four days. In addition to 20 exhibits that were presented by the Bureau of Exhibits, many other organizations participated. This was the first time that such a venture had been organized in connection with an American Medical Association meeting. It was called an educational experiment but was so eminently successful that it could well be copied at other Association meetings.

Museums.—The Bureau has continued to cooperate with various museums over the country. These afford a tremendous opportunity for health education with their millions of visitors in the form of ready-made audiences. Exhibits from the American Medical Association are on display at the Cleveland Health Museum, the Dallas Health Museum, the Army Medical Museum, and the Smithsonian Institution in Washington, D. C. Temporary exhibits have been shown at the Roberson Memorial Museum in Binghamton, N. Y., and the Spa at Saratoga Springs, N. Y. Exhibits at the Museum of Science and Industry in Chicago date from the Golden Gate International Exposition in 1939, and it is hoped to replace them. The medical section of the Museum of Science and Industry is one of the popular features for three million visitors annually.

COMMITTEE ON MOTION PICTURES AND MEDICAL TELEVISION

In 1952 the activities of the Committee on Medical Motion Pictures were expanded to include television as applied to medical education and on May 8, 1955, the Board of Trustees changed the name of the committee to Committee on Motion Pictures and Medical Television.

Film Library.—Fourteen new films were added to the motion picture library, making a total of 563 copies of 123 titles. During the year 3,141 films were lent to medical societies, medical schools, hospital staff groups, individual physicians, and television stations, representing a substantial increase over the same period last year. The addition of a television section to the film library has considerably increased the amount of clerical work, correspondence, and film inspection services rendered by the staff.

Film Reviews.—Unbiased and critical reviews of medical and health films are published regularly in THE JOURNAL. These reviews are prepared by the Committee in collaboration with authorities in the various specialties of medicine and surgery. Eighty-one reviews were prepared by the Committee, 73 of which were published in THE JOURNAL. Copies of booklet no. 6, containing all reviews published during the calendar year 1954, were sent to the secretary of each state medical association and each medical school and were made available to county medical societies. The Editorial Advisory Board of *Today's Health* has arranged to publish reviews of health films on a regular basis. This review section will be maintained by the Committee, and a series of reviews have already been submitted to the editor of *Today's Health.*

Conferences and Meetings.—There has been a growing interest in medical and health films, and the Committee was asked to help organize and supervise several film programs during the past year. At the Fort Worth meeting of the Texas State Medical Association, the secretary cooperated with the program committee in organizing and supervising a motion picture program. The secretary also arranged a motion picture program for the John Andrew Clinical Society Meeting in Tuskegee, Ala. A very successful film program was presented at the Health Fair in Miami, which was held immediately after the clinical meeting. The Committee was asked to make a selection of outstanding surgical films for showing at the 20th Congress of the International College of Surgeons held in Geneva, Switzerland, on May 23-26.

The regular motion picture programs at the Clinical Meeting in Miami and the Annual Meeting in Atlantic City were well attended. Special mention should be made of the growing popularity of the evening film sessions, and from all indications an evening film program will be a regular feature of the annual and clinical meetings.

Pediatric Films.—In cooperation with the American Academy of Pediatrics, the Committee has developed a plan whereby most of the existing films on the subject of pediatrics will be reviewed by panels of pediatricians throughout the country over a period of two or three years. The Committee is coordinating the project and is handling the administrative details. Eventually this valuable information will be published in booklet form.

Foreign Cooperation.—At the invitation of the International College of Surgeons, the secretary presented an illustrated paper on The Value of Motion Pictures in Surgical Training at the 20th Annual Meeting held in Geneva, Switzerland. Several days were spent in Germany making a brief study of the production and distribution of medical films and discussing possible methods of exchanging such films. Many profitable conferences were held with representatives of the Institute for Scientific Films in Gottingen and the Hesse Land Film Council in Frankfort, with officials of the I. G. Farben Company in Hoechst, and with the surgeon and training officer of the United States Seventh Army in Stuttgart. In Geneva, additional conferences were held with Dr. James Troupin of the World Health Organization, film officer at the United States Embassy and Prof. H. de Watteville, president of the International Federation of Gynecology and Obstetrics. During a brief stopover in Paris, meetings were held with representatives of the International Scientific Film Association. As a direct result of these conferences, a program has been initiated whereby a limited number of medical films are exchanged on a loan basis. These motion pictures are being transported through official German government channels.

Television.—The Committee continues to serve as the principal clearing house for information on a great many aspects of motion pictures in medical television. Requests for information come from individual physicians, medical societies, medical schools, hospitals, and other scientific organizations. There has been an increase in the number of requests for information from lay groups as to the availability of films in the field of health education.

MISCELLANEOUS ACTIVITIES

A multitude of miscellaneous activities has occupied members of the staff, such as conferences, talks and lectures, book reviews, preparation of manuscripts, serving on boards and committees, and similar projects.

The Director of the Bureau has continued his connections on the faculty of the University of Illinois College of Medicine and as director of medical exhibits at the Museum of Science and Industry in Chicago.

Report of Bureau of Health Education

This is the 45th annual report of the Bureau of Health Education, which was established in 1910 as a Council on Health and Public Instruction, was changed in 1923 to a Bureau of Health and Public Instruction, and was renamed in 1938 to its present title. The report represents the 23rd year of the incumbency of the present Director. Since routine features of the work of the Bureau have been extensively recorded in previous reports, they will be dealt with here only briefly.

Dr. William W. Bolton, associate director, continues to spend most of his time answering health questions received from lay inquirers. These are stimulated by the increasing circulation of *Today's Health* and by the growing volume of letters from televiewers as television has expanded. In addition to the sources of information within the headquarters building, the Bureau has been assisted by numerous consultants among practicing physicians and allied scientists who have given liberally of their time to helping answer questions for no compensation except the satisfaction of public service. Questions and answers selected from this correspondence form a department in *Today's Health*, which constitutes one of the three most read parts of the magazine. Despite the variety and often the complexity of questions received, the absence of complaints or adverse comment indicates that it is being carried out to the full satisfaction of the profession as well as of the inquirers.

Most of 1954 and 1955, up to the date of this report, has been spent in following through after the 1953 National Conference on Physicians and Schools, with state medical societies holding local or statewide conferences, and in preparing for the Fifth National Conference at Highland Park, Ill., which will have been held prior to the publication of this report. Advance plans and registration indicate a larger attendance and a greater interest than in any of the four successful conferences held previously.

The Bureau has carried forward its usual varied program. It has received cooperation from and has cooperated with other bureaus and departments at the Association headquarters in matters of mutual concern. The Bureau staff has also continued to supplement the work of the staff of *Today's Health*; this, as heretofore, has been reciprocal.

LOAN COLLECTIONS

Requests for the various packets of health education material made available by the Bureau to physicians and professional workers for use in the preparation of health talks for presentation to lay groups totaled 65 (85) for the 10-month period ending June 30. Leading requests were for material on cancer and medical advances. Marriage and geriatrics followed, and there were also requests for mental hygiene, sex education, medical education, and nutrition material.

MANUSCRIPTS, BOOK REVIEWS, ETC.

The Bureau staff reviewed 7 books for THE JOURNAL and 11 for *Today's Health* and prepared 14 other contributions for THE JOURNAL and 127 for *Today's Health*. The staff originated 295 articles and two book reviews published in periodicals other than those of the American Medical Association. Advice and consultation on manuscripts was furnished seven organizations.

RADIO AND TELEVISION

The situation with regard to television and radio has not changed greatly since last year's report. Television grows but radio does not diminish correspondingly. In the larger cities, television commands the greater share of public attention but, in rural areas and elsewhere where television is limited or unavailable, radio is as strong as ever. Even in urban centers, smaller radio stations, concentrating on music, sports, or news, develop a considerable following and continue to constitute media worthy of the attention of medical societies in their respective areas. The Bureau's electrical transcriptions still have hundreds of outlets and account for thousands of local broadcasts. Network radio, discontinued last year, has not been resumed.

In television, the Bureau has produced and made available for distribution in the last year 10 new items for the use of county medical societies in film form and has developed a considerable library of helps for local societies, described as "TV-tested Televisuals," available on request without charge. Six additional "What To Do" (before the doctor comes) 5-minute films have been completed and have been made available for commercial sale. Interest has been manifest in several quarters, among which are acceptable commercial sponsors, but no detailed report can yet be made. In addition, work has been progressing on seven programs of script with film for combined live and film local use. The four similar programs developed last year have been received locally with enthusiasm, though they have not been widely used as yet. This seems to be the best form of help to local societies, in addition to "Televisuals."

The televisual helps have not been extensively used by local medical societies as yet, but the expectation is that, as television stations multiply, the interest of the profession in the use of this medium will be aroused. It will then be the obligation of the Bureau to be in a position to help without undue delay. At the same time, it is believed that caution must be exercised before investing large sums of money to be sure that local medical interests in television will ultimately justify the expenditures.

"The Doctor Answers," a Monday through Friday 15-minute telecast featuring Elizabeth Hart and Dr. W. W. Bauer, Director of the Bureau, began in February, 1954, and has continued uninterruptedly. It is telecast on WBKB, Channel 7, at 3:30 p. m. The Chicago Federation Advertising Club award for the outstanding education television show of the year was awarded to the American Medical Association for the program, "The Doctor Answers." Awarded annually, this presentation is regarded highly within the television industry, since the judging and selection of winners is made by professional advertising men and television executives representing all phases of the broadcasting industry. The program is based on questions received from the viewing audience and is, therefore, highly diversified, miscellaneous, and informal in character and presentation. There is a strong possibility that this program may be put on film for widespread distribution under appropriate sponsorship. The compensation to the doctors appearing on this program has been delivered under a special contract to the American Medical Education Foundation; these sums amount to approximately $5,000 as of the date of this report.

RADIO AND TELEVISION FROM CLINICAL AND ANNUAL MEETINGS

Radio and television services other than scientific telecasting in color in connection with the Miami Clinical Meeting and the Atlantic City Annual Meeting were handled, as usual, by the Bureau of Health Education. At both sessions in many instances the Bureau's materials were used by well-known broadcasters and telecasters on established programs with wide and regular listening audiences.

Clinical Meeting.—Local stations and networks during this meeting were very appreciative of daily servicing with American Medical Association releases. They were used for feature material on regular broadcasts from both New York and Miami local stations. News coverage in Miami was extremely good. This year for the first time the TV news services expressed an interest in the governmental procedure of the Association. Fox Movietone News took film of the House of Delegates for network television syndication.

Annual Meeting.—The special circumstances of Atlantic City having no direct connection to radio or television networks occasioned a rather different type of convention coverage this year. Materials produced were shipped by bus and messenger to New York and Philadelphia radio and television networks and national television film news syndicates. In the case of television news syndicates and CBS Telenews, each reproduced the number of prints necessary to service their stations. This could be anywhere from 40 to 80 prints per syndicate, which should have given saturation on every local television station in the country. While a complete report, station by station, is not possible, the Director feels safe in declaring that nobody in the United States could turn on a radio or television news program during the week of June 6 without hearing about the American Medical Association.

LOCAL BROADCASTS

Four local radio programs and six television broadcasts were given by the staff of the Bureau in connection with meetings being attended in other cities and in Chicago.

Health and Fitness Division

The Health and Fitness Division functions as an integral part of the Bureau of Health Education. It is staffed by two consultants, Drs. Donald A. Dukelow and Fred V. Hein. State and local medical societies and voluntary and governmental agencies in education and public health are offered consultative service on the medical and educational aspects of school health by this physician and educator team. Having a physician certified in preventive medicine and public health with a variety of experiences in both these areas and an educator trained and experienced in health teaching and supervision at all school levels has aided materially in making the counsel on administrative and interprofessal problems in school health offered by the Association acceptable to all of the professional interests involved. The demand for the services of these consultants has steadily increased over the nine years during which the division has been functioning.

The preliminary plans for the fifth National Conference on Physicians and Schools were crystallized during this period. This was one of a series of biennial conferences sponsored by the American Medical Association under the direction of the Bureau of Health Education at the Hotel Moraine, Highland Park, Ill. It was held Oct. 12 to 14, 1955. Like its predecessors, the fifth conference was planned and directed by the consultants in health and fitness. As was true of those held in 1947, 1949, 1951, and 1953, the conference was an invitational affair, attended by more than 200 representatives of state and territorial medical associations, health departments, education departments, and delegates from a number of national voluntary and governmental health and educational agencies. Nearly 100 consultants drawn from the professions of medicine, education, and public health were invited to serve as leaders for the 10 projected discussion groups on the relationships of physicians to the school health program. These national conferences have encouraged many state and local conferences of a similar nature covering school health. The consultants have participated in planning and conducting many of these, and their services are available to state associations for such purposes.

The educational consultant is a member of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association. At this year's meeting of the committee, he was again elected secretary and is now serving in this capacity for the fifth consecutive year. Both consultants provide assistance to the Joint Committee in a number of ways and particularly as technical assistants to the several subcommittees concerned with Joint Committee projects. Both consultants also served on the final editing committee that, during the past year, completed the preparation of the Joint Committee's new pamphlet series on sex education. These brochures are already being widely distributed to parents, teachers, and other youth leaders. The two consultants also assisted in the editing and preparation of the Joint Committee pamphlet entitled, The Nurse in the School.

The Medical Consultant has now completed his fourth year in a consultative capacity to the Council on Medical Service. As consultant to the Committee on Maternal and Child Care, liaison between the child health activities of the Council and those of the Bureau of Health Education, as these relate to school health programs, has thus been established. Dr. Dukelow also has served as health education consultant to the Joint Committee on Medical Care for Industrial Workers of the Council on Medical Service and the Council on Industrial Health. During the current year, as in the past, the consultants have assisted the Bureau Director in the preparation of several transcription series and other radio and television programs. As television develops further, this phase of the consultants' work will no doubt assume increasing importance. The Medical Consultant participated in the Illinois Conference on Educational Television.

Health education films, particularly those used for visual education in the schools, are important educational mediums. Within limitations, the consultants review films in the area of child health and those used for classroom instruction in health that come to the Committee on Medical Motion Pictures to determine their technical accuracy and applicability. In certain instances the consultants make use of appropriate films from the Committee's library in connection with their Association responsibilities in the field. They have also advised on the production of film strips for classroom instruction in health subjects.

The informal inquiry into medical school teaching in preventive medicine and the evolution of physician attitudes toward public health administration and school health services is being continued from previous years. The informality of this inquiry and the constant and rapid change taking place in teaching practices makes this a long-term project. Considerable consultant time is given to conferences, meetings, and institutes conducted by universities, teachers' colleges, state departments of health, and education and other agencies to improve understanding of school health services, school health education, and healthful school living. The consultants have also participated in the orientation of foreign visitors and graduate students to the Bureau, particularly in reference to school health policies and programs. During the past year, individuals or parties from many countries and students from a number of universities have been welcomed to the Bureau offices.

For the ninth year, the consultants have prepared discussion questions on the articles in *Today's Health* to aid teachers in using the Association's health magazine as classroom health education material. The questions are developed for each issue published during the school year and sent to all interested schools subscribing to *Today's Health*. As a means of promoting healthy interprofessional and interagency relations between the American Medical Association and other educational and health agencies concerned with school health, community organization, and health promotion, both consultants are active in the work of many associations. Within these organizations, they seek to advance school and child health interests by accepting invitations to address or confer with participants at meetings called by such agencies. Services of this nature have been provided for state and local medical associations and their auxiliaries, various councils, bureaus, and committees of the American Medical

Association, various national and state health agencies, public health and education departments, parent-teacher associations, professional education associations, and other similar groups. As a matter of policy the medical associations of the state and county in which such meetings are held are always given advance notice of the presence in their vicinity of a consultant from the Bureau of Health Education.

The pamphlets that have been the basis of the school health consultation service continue in their usefulness and popularity, and the two exhibits on school health prepared in previous years are still in demand and are available for showing at annual meetings and conferences of interested organizations.

BUREAU PUBLICATIONS

The Bureau now carries 292 health education pamphlets as regular American Medical Association stock. In addition to the pamphlet, the Bureau prepared six new promotion folders for the electrically transcribed radio series, one new folder for the What To Do film series, a special folder describing speakers available from the Bureau, and a special folder entitled If You Want to Write for *Today's Health*, which is sent to prospective writers. Eighteen organizations list either the Bureau's catalog or some of its pamphlets in their own catalogs. The pamphlets are sometimes used to enhance another organization's exhibit; for example, the Department of Health, Education, and Welfare used eight of the pamphlets in one of its exhibits at the Miami Health Fair in December.

MEETINGS AND CONFERENCES

The Bureau staff attended meetings or addressed audiences in 30 states, the District of Columbia, and Canada, and participated in 362 conferences and committee meetings.

COOPERATIVE RELATIONSHIPS

The Director of the Bureau serves as the official representative of the American Medical Association on the following committees:

- National Citizens Committee for Educational Television
- Cleveland Health Museum, National Advisory Council
- American National Red Cross, Advisory Board on Health Services
- American Medical Association Committee on Television
- Safety Organization Subcommittee on Organized Public Support of the President's Highway Safety Conference
- American Diabetes Association, Committee on Purposes and Policies
- National Congress of Parents & Teachers, Advisory Committee on Health and Summer Round-Up
- National Society for Medical Research
  - Executive Committee
  - Board of Directors
- National Committee for Boys & Girls Club Work, (4-H Clubs)
- National Safety Council
  - Home Safety Conference
  - Traffic and Transportation Conference
  - Advisory Committee on Organization and Policy

United States Government Agencies.—The Bureau continues to cooperate by correspondence or otherwise with government agencies. Materials or information have been furnished during the past year to the following government agencies:

- U. S. Naval Research Laboratory, New Haven, Conn.
- Bureau of Indian Affairs, Mt. Edgecumbe, Alaska
- U. S. Information Agency
- Federal Extension Service
- Public Health Service
  - National Institute of Mental Health
  - Division of Dental Public Health
  - Information Services
- Office of Education
- Bureau of State Services

JOINT COMMITTEE ON HEALTH PROBLEMS IN EDUCATION, A. M. A.-N. E. A.

The chief function of the Joint Committee is: "To consider principles and policies and to make recommendations on problems affecting the health of children and youth of school age." The committee, established in 1911 at the suggestion of the American Medical Association, this year completed its 44th year of activity. Now composed of five representatives of each of the parent organizations, appointed by their respective governing bodies, the committee provides a medical-educational appeal board on health problems in education. Membership on the committee during the past year consisted of the following representatives of the American Medical Association: Ray O. Bjork, Helena, Mont., chairman; Fred V. Hein, Chicago, secretary; Herman M. Jahr, Omaha; Charles Outland, Richmond, Va.; and Carl O. Wilzbach, Cincinnati. Representatives of the National Education Association were Marjorie Eastabrooks, Olympia, Wash.; Ruth Grout, Minneapolis, vice-chairman; Delbert Oberteuffer, Columbus, Ohio; Mazie V. Scanlan, Atlantic City, N. J.; and Austin Snyder, Sayre, Pa.

During the period from March 1954 to March 1955, between its annual sessions, the Joint Committee's new pamphlet series on sex education was published. This series, a project approved by the governing boards of both associations, had been in process over a two-year period. At its annual meeting, the Joint Committee adopted resolutions covering the following matters:

1. Commending the National Conferences on Physicians and Schools sponsored by the American Medical Association and the National Conferences on Health Education conducted under the auspices of the National Education Association.
2. Urging the extension of efforts to spread scientific understanding and to develop personal responsibility and motivation in respect to health so as to put the advances of medicine to work for the benefit of the people.
3. Commending the health education efforts of reputable scientific and educational groups in the fuller use of all available media for health education including pamphlets, exhibits, films, newspapers, magazines, radio, and television.
4. Emphasizing the need for careful health supervision of athletes, including the provision of proper medical guidance, the development of improved protective equipment, and the adaptation of rules to the age, capacities, and sex of players.
5. Announcing to parents, schools, youth leaders, and others the availability of five 1955 publications of the Committee in the area of family life education: Parents Privilege, A Story About You, Finding Yourself, Learning About Love, and Facts Aren't Enough.
6. Urging boards of educations to make evidence of freedom from tuberculosis a condition of employment as a part of the general board requirements designed to assure continuing fitness to teach.
7. Condemning the administration of drugs to stimulate athletes to greater activity or to narcotize an injured part of the body for purposes of continuing play or mass medication with vitamins or other products as poor medicine and worse education.
8. Outlining procedures for the release of children from school, when this is necessary, which will protect the health and safety of children and avoid turning over pupils to unauthorized individuals.

Another publication completed by the Joint Committee during 1955 is the brochure, The Nurse in the School. This pamphlet, a revision of an earlier edition by the same title, outlines the functions and responsibilities of the nurse serving the school. School Health Services, a companion volume for the authoritative text, Health Education, which was produced by the committee in 1953, has enjoyed a wide distribution during the current year. To complete its series of volumes on the three aspects of the school health program, the committee has begun work on a new book covering the area of healthful school living. All of the pamphlets and statements of the Joint Committee are available from either the American Medical Association or the National Education Association. During the year March 1954 to March 1955, a number of subcommittees were active in a variety of projects having to do with school health.

MISCELLANEOUS

The Bureau entertained and arranged observation schedules for 19 visitors, including one or more from each of the following countries: Denmark; Ethiopia; Finland; Germany; India; Iran; Israel; Japan; Thailand; and San Salvador.

In most instances arrangements were made for these visitors to tour the American Medical Association building and to spend time in the particular departments that interested them most. Arrangements were made for many of them to visit and become acquainted with the work of other Chicago agencies, such as the American Dental Association, the American Hospital Association, the American College of Surgeons, medical schools and universities, health departments, social agencies, public schools, and museums.

APPRECIATION

The Director's annual and favorable comment on the teamwork, industry, loyalty, and skill of the Bureau staff, professional and nonprofessional, is repeated with the usual emphasis.

Report of Bureau of Medical Economic Research

Contrary to the practice in recent years, the period covered by this annual report ended June 30 instead of Sept. 30, a period of 9 instead of 12 months. The studies published during July, August, and September, 1955, will be reviewed in next year's report: M-95, Component Medical Societies, Membership, and Boundaries, includes a map showing the boundaries of the 1,929 component medical societies; all of Bulletin 99, Economic Position of Medical Care, 1929-1953, except the appendix and some of the tables was published in two articles in The Journal Sept. 3 and Sept. 10. Apparently M-94, The Distribution of Medical School Alumni, will not be published until after Sept. 30; it is now certain that Bulletin 101, Women Physicians, and Bulletin 102, Physicians' Mortality, 1949-1951, will not be published until about the time of the Boston meeting. Consequently, only Bureau bulletins 97, 98, and 100 and miscellaneous publications M-88 to M-92 will be discussed in this report.

TOTALITY OF PHYSICIAN SERVICES

Prior to scheduling Bulletin 97, several years ago, the Director became disturbed by the absence of any measure of the totality of medical services rendered by physicians to the American people during a year other than the total number of dollars spent. Several Bureau studies have dealt with the costs of medical care. In a free society the other side of the story of money spent is the value and quantity received. So a long-range program has been initiated; it is designed to measure the totality of the services that physicians give the American people in the course of a year. When this series of studies is completed in a few years, it will be possible to estimate the number of services by type. This new measure of total services of physicians will add much to the literature of medical economics and to a greater understanding and appreciation by the American people of the enormous quantity of medical services that they receive during a year—what they get for what they spend. The task will be difficult, and the participation of a well-selected sample of physicians will be necessary to complete the Bureau's estimates of the totality of physician services.

Services of physicians to hospital patients were selected as the starting point. Bulletin 97, Age and Sex Distribution of Hospital Patients, was the first of several links in the chain. The data were obtained from four questions inserted in the last annual census, 1953, of registered hospitals conducted by the Council on Medical Education and Hospitals. Subsequent surveys will utilize census schedules in annual surveys of hospitals conducted jointly by the American Medical Association and the American Hospital Association. The replies revealed some rather startling facts on the age and sex distribution of patients on the day of reporting—for most hospitals a day in the last quarter of 1953. Although about 17% of the patients admitted during 1953 to the 6,539 replying hospitals were pregnant women, only 46.8% of the patients on the day of reporting were females. One might have expected a national ratio of roughly three female patients to two male patients. Even at the childbearing ages of life there was an excess of males. The age distribution of the hospital patients of American physicians was significant: 7.5% were under 15 years of age, 40.9% were in the age group 15 to 44, 31.2% were in the age group 45 to 64, and 20.4% were in the age group 65 and over. There was an excess of male patients in each of the four age groups, although the margin in the age group 65 and over was very small. Of the youngest group of patients—under 15 years of age—it was surprising to find that 28% were in nervous and mental hospitals. The unexpected excess of male patients treated by physicians in the American hospital system aroused curiosity and an explanation was sought in the grouping of hospitals by type of service and by type of control; the former proved fruitless, but the latter classification was revealing. In nongovernmental hospitals, where most of the babies were born, only 58.9% of the patients were females; in state and local governmental hospitals 49.4% of the patients were females; but in federal hospitals only 6.0% of the patients were females. Any excess in the number of male patients in the entire hospital system is astounding and the easy access to federal hospitals, particularly those of the Veterans Administration, accounted for the over-all excess of males among the hospital patients being treated by the nation's physicians. The study demonstrated that males are the more hospitalized sex, and the principal explanation of that startling fact must be found in federal hospital practices. The counter claim that this excess of hospitalized males results from the large number of male veterans overlooks the unusually large number of births in hospitals in 1953.

THE JENKINS-KEOGH BILLS

In Bulletin 98, Current Status of Jenkins-Keogh Bills, the legislative history of the proposals was reviewed with emphasis on the events of 1954. The similarity between the Jenkins-Keogh bills then before Congress and the proposals of the Millard Tucker No. 2 Committee of the British Parliament was noted. After making allowance for the considerable differences between the tax systems of Britain and the United States, it is reasonable to say that the two proposals to relieve the pension plight of the self-employed are quite similar. Thus far, the Conservative party in Britain has announced no official stand on the recommendations of the committee appointed in 1950 by Sir Stafford Cripps, Chancellor of the Exchequer in the Labor government. This publication also discussed the alternate proposals of Congressman John R. Ray (R., N. Y.). The Ray bill was inspired by the interest of Thomas E. Dewey in the spring of 1954. He predicted that the lower limits of the Ray bill would be more likely to gain the approval of the Treasury Department. On the basis of his political experience he contended that a watered-down version of the Jenkins-Keogh bills would facilitate enactment of the basic principle common to both proposals.

Data derived from National Income, 1954 edition, of the United States Department of Commerce, indicated that 4.9 billion dollars was set aside in 1953 for pension and welfare plans by employers. No tax was paid by the employers or the employees on this large sum. Of this grand total, 3.1 billion dollars was contributed by employers to all manner of pension and profit sharing plans, and an additional 1.4 billion dollars was in the form of free group life insurance. Death benefits provided thereunder are a counterpart to the accumulated savings available at death that could be developed by the self-employed or pensionless employed persons under the Jenkins-Keogh bills. These data should enable physicians and others interested in these bills to answer effectively the argument that these bills would swing the balance of discrimination around to favor the self-employed. Moreover, under these bills there is actually no vesting until age 65 in the industrial pension sense of that term. In answer to the claims that these bills would benefit only those with high incomes, it was pointed out that 10% of the respondents in the 1949 survey of physicians' incomes reported net incomes of less than $2,650 and 23% reported net professional incomes of less than $5,000; also, the average incomes of all the employed and all the self-employed are about equal. In Bulletin 98 it was also pointed out that there would be little difference between the pension funds that could be accumulated by older self-employed physicians under the Jenkins-Keogh bills and the Ray bill, but the pension fund accumulations of self-employed physicians under age 50 when the bill was enacted would be severely restricted under the Ray bill. The Bureau called attention to the necessity of "patching this hole in the pension umbrella" in order to make self-employment more attractive.

Bulletin 100, Testimony on Jenkins-Keogh Bills, June 27-28, 1955, is probably the Bureau's most comprehensive publication on the subject of pension tax equality for the self-employed. It presents the testimony given on June 27-28 before the House Ways and Means Committee by representatives of the American Bar Association, the American Dental Association, the American Farm Bureau Federation, the American Medical Association, and the Treasury Department. The Bureau had been waiting since early 1953 for the official analysis by the Treasury Department. Although the Secretary of the Treasury thrice admitted that the Federal Internal Revenue Code discriminated against the self-employed in the matter of establishing retirement funds, he insisted that relief must be postponed again and again until the budget is balanced. Moreover, he did not appear to give the Jenkins-Keogh bills a very high priority in his whole program of tax reduction. In this bulletin major attention was devoted to data given by the Treasury Department, particularly the table summarizing pension contributions of employers in

1951 under 8,568 plans approved by the Bureau of Internal Revenue. It is not known how representative of the 27,000 approved plans these plans are, but in one-third of these plans the employers' contributions exceeded 10% of the aggregate compensations of covered employees. It seems reasonable to suppose that, in the case of some employees, the employer's contribution was 200%, 300%, or 400% of the annual compensation of those particular employees. Otherwise, the aggregate contribution of the employers in one-third of the plans could not have exceeded 10% of the aggregate compensation of the employees. This difference between a limit of 10% and an average of 10% is one of the most critical points that physicians should make clear to their congressmen and senators in discussing the Jenkins-Keogh bills. Moreover, in 10% of the plans studied, the employer's contribution exceeded 16.2% of the aggregate compensation of covered employees. The maximum contribution is 10% of earned income under the Jenkins-Keogh bills and only 5% under the Ray bill.

Self-employed members of the American Medical Association can henceforth support these bills with the clear understanding that the 10% limit is extremely modest and that, in the light of the Treasury Department's study of the more than 8,500 approved plans in 1951, it is probably too low to provide equity for the self-employed. This bulletin also includes the statements made by Dr. Edwin S. Hamilton and the Director of the Bureau in answer to inquiries by members of the House Ways and Means Committee in regard to the provisions for withdrawals prior to age 65 in case of permanent or total disability. Many pension plans of employers provide some kind of disability benefits in addition to salary continuation during disability. The inquiring congressman indicated that he was not opposed to such provisions for employed persons. Furthermore, this disability withdrawal provision is a poor substitute for a comprehensive provision that would, by providing for reasonable withdrawals prior to the age 65, make savings under the terms of the bills more attractive to young persons. The inquiring congressmen were urged to find a satisfactory formula for withdrawals before age 65. Certainly the members of the Coordinating Committee on Pensions for the Self-Employed and Pensionless Employed have been unable to develop a formula that would provide the needed incentive for younger persons to save for old age under these bills and, at the same time, avoid the inevitable charge that it would permit tax dodging. Finally, the testimony of the other national associations included in Bulletin 100 is further evidence of the community of interest in attempts to remove the economic sin of being self-employed.

High-Water Mark.—On July 19 the Committee on Ways and Means, by a vote of 16 to 8, included an amended version of the Jenkins-Keogh bills in the bobtail revenue bill, which was not completed before Congress adjourned. That action was the high-water mark in the struggle to gain pension tax equality for the self-employed. Presumably this revenue bill will be completed early in the next session. There is an uncertain future for any tax measure until it has been reported out by the Committee to the floor of the House. The American Bar Association expects to develop a grass-roots drive to advance this voluntary retirement plan for the self-employed toward final enactment.

Leaders of medicine should understand that the bill was amended by the Ways and Means Committee before approval on July 19. These amendments are as follows: (1) the maximum dollar amount that could be set aside annually was reduced from $7,500 to $5,000, and the lifetime maximum was reduced from $150,000 to $100,000; (2) funds could be invested in a combined annuity contract and life insurance policy with tax deferment only on the annuity part of the premium; (3) self-employed taxpayers could use a bank as a custodian of their retirement funds and thereby control the investment of the funds—a third alternative to the provisions already in the bill permitting investment in a restricted retirement fund or in the restricted annuity contract; and (4) yielding to the arguments of the Secretary of the Treasury regarding revenue loss and potential administrative difficulties, the Committee restricted the coverage of the bills to the self-employed, thereby excluding the pensionless employed. The Director of the Bureau continues to regard the Jenkins-Keogh bills as the cornerstone of the struggle to arrest the extension of the social insurance idea based on the doctrine of individual irresponsibility. The enactment of these bills will initiate a trend away from relying on the federal government to provide retirement income. It will also make self-employment more attractive, and thereby encourage more young professional men to prefer self-employment. Such a result will certainly be in the public interest.

MISCELLANEOUS PUBLICATIONS

Miscellaneous publication M-88 analyzed the weekly and hourly wages of physicians and dentists. Using the rule of 52 hours of pay for 48 hours of work and 68 hours of pay for 56 hours of work, the average hourly wages of all physicians and all dentists in 1951 were $3.54 and $3.31, or, on a straight time basis, $4.22 and $3.46. M-89 is a reprint from the *Wall Street Journal* of Dec. 9, 1954, of an excellent summary of the status of the Jenkins-Keogh bills. M-90 is an index to the bulletins and miscellaneous publications of the Bureau since it was reorganized in the fall of 1946 and evidently was widely appreciated by students of medical economics as well as by many physicians and staff members of constituent and component medical societies. M-91, Reappraisal of Social Security, was a rather detailed review of the startling findings presented in the staff report, Social Security After 18 Years, to the Subcommittee on Social Security of the House Ways and Means Committee (83rd Congress, second session). In the Director's opinion this staff report is still the best analysis and description of the true nature of Old Age and Survivors Insurance. It provides a step-by-step explanation of the gross misrepresentations designed to make the American people consider this an insurance program when it is only a disguised system of old age assistance. In fact, at the end of 1952, the 2,600,000 persons currently drawing OASI primary benefits had received or would receive, on the average, $24 for each 50 cents they had contributed and each 50 cents their employers contributed. M-92 is a reprint of the excellent article by Mr. Harry Silverson entitled Taxes and the Self-Employed: A Study in Retrogression, from the *American Bar Association Journal,* January, 1955. Mr. Silverson concluded that tax discrimination against the self-employed has actually increased during the past six years, in spite of the concerted efforts during that period to eliminate the economic sin of being self-employed.

OTHER ACTIVITIES

The Director participated in two television programs on the cost of medical care, gave several addresses before state and county medical societies, and discussed medical economics before first year students of a medical school and two chapters of the American Statistical Association. He also devoted a considerable amount of time and effort, as in previous years, to his work as the American Medical Association representative on the Coordinating Committee on Pensions for the Self-Employed and the Pensionless Employed.

IBM OPERATIONS

Between two-thirds and three-fourths of the cost of maintaining and operating the IBM section is for the Bureau's research work. Data for many of the tables already presented in Bureau publications and in publications now in process involve IBM operations. In addition, the Bureau has continued to do accounting work for the American Medical Education Foundation and survey work for the Committee on General Practice Prior to Specialization, the Council on Medical Education and Hospitals, the Council on Medical Service, the Council on National Defense, and such outside organizations as the Council of State Governments, the American College of Surgeons, and the Association of American Medical Colleges. Some of this service for others also involved a considerable amount of work by the research staff. The continuous census of physicians is still handicapped by the lack of a full and accurate flow of data from the Directory Department. Two years ago the State Medical Society of Wisconsin entered into an arrangement with the Bureau for developing IBM records on its members. Practically all difficulties have been eliminated, and the system is working satisfactorily for the Bureau, the Membership Department, and the staff of the State Medical Society of Wisconsin. The Director is thoroughly convinced that a broad plan for integrating the IBM work in the Bureau and in the state medical associations will not only improve records but reduce costs considerably. Statisticians, however, in their enthusiasm must always be careful not to invade the areas of statistics where record keeping can be better done by hand than by machine.

Supplementary Report

It is expected that a supplementary report on additional subjects will be available for presentation at the first meeting of the House of Delegates in Boston.

Respectfully submitted,

Gunnar Gundersen, Chairman.
F. J. L. Blasingame, Vice-Chairman.
Edwin S. Hamilton, Secretary.
Julian P. Price.
James R. Reuling.
James R. McVay.
David B. Allman.
Leonard W. Larson.
Thomas P. Murdock.
Elmer Hess.
Dwight H. Murray.

REPORT OF THE JUDICIAL COUNCIL

To the Members of the House of Delegates of the American Medical Association:

During the past year, the Judicial Council has met on seven occasions and has considered an unusually large number of inquiries from both individual members of the Association and medical societies concerning interpretation and application of the Principles of Medical Ethics. A majority of this correspondence related to advertising, solicitation of patients, purveyal of medical service, and fee splitting. Only one appeal has been considered during the period for which this report is made. Because of frequent and repeated requests for interpretation of the Principles on almost the same factual situation, the Judicial Council during this past year inaugurated the practice of publishing its opinions from time to time in The Journal. These opinions, six of which have been published so far, may be found in the column of The Journal entitled Medicine and the Law. The Council will continue to publish opinions on matters of common interest and in answer to questions most frequently asked.

The Council is also undertaking a review of its annual reports to the House of Delegates submitted since the turn of the century. These reports will be indexed and assembled as annotations to the Principles of Medical Ethics. The opinions currently published in The Journal will also be collected as annotations to the Principles. The Council envisions the publication, in the not too distant future, of a collection of its opinions that will be available to members and medical societies alike so that established and published precedent will be available to serve the profession in its own resolution of ethical problems.

Principles of Medical Ethics

The Council believes that it is necessary to remind the Association that there is but one set of principles of medical ethics —the Principles of Medical Ethics of the American Medical Association. These principles, as has been so frequently stated, apply to and constitute a guide for each member of the Association. Indeed, every conscientious and honorable doctor of medicine knows and observes these principles. It matters not whether the member practices individually or in a group or partnership, whether he practices in a rural or urban area, or whether he is a specialist or general practitioner. The Council repeats, there are no particular principles for specialists, there is not a set of principles for partners, and there is no set for one area and another set for another area. The Principles of Medical Ethics are uniform in application and universal in their acceptance.

Right of Constituent Association When Member Appeals

Recently the Judicial Council was asked to express an opinion concerning the right of a constituent association to reverse or modify a decision reached by one of its component societies in a disciplinary proceeding. In this case, the society found a member guilty of unethical conduct and imposed a sentence that the member thought was too severe. He appealed to the state association, asking it to review the case and reduce the punishment commensurate with the gravity of his offense. The state association on appeal affirmed the finding of guilt but sustained the position of the member that the sentence was too severe. It reduced the sentence imposed by the component society. The component society thereupon appealed to the Judicial Council contending that the state association had no authority to mitigate punishment, especially when no error of law or procedure was alleged.

At the very outset, the Council was impressed with the fact that the constitution and bylaws of the state association were silent concerning the right of the state to act on appeal; that is, although the right of appeal was granted, no procedure was prescribed for appeal, and no clue existed in the adopted laws of the association concerning disposition of an appeal. The Council came to the conclusion that the state association did have, in the absence of specific provision to the contrary, the right to modify the punishment imposed by one of its component societies. It based its conclusion on two grounds: (1) a right of appeal would be sterile and of no value whatsoever if an inherent right did not exist to affirm or reverse the decision appealed from, and that the right to reverse includes the right to modify; and (2) the state association being the parent and chartering body possesses the right to supervise the actions of its component societies and this right, being inherent by nature in the constituent association, is limited only by the restrictions found in its constitution, bylaws, rules, and regulations. Thus, if the right of appeal to the state association is granted without limitation or restriction, it must be presumed that the state has the right to act on appeal as its judgment dictates.

Obligation of Medical Societies to Review Disciplinary Procedures

The Judicial Council in past annual reports to the House of Delegates has frequently made reference to disciplinary procedures at local levels. It feels obligated to stress again that matters of discipline, by and large, are matters of local resolution, especially in the first instance. Component societies and constituent associations have a continuing obligation to review their disciplinary mechanisms and, based on experience, improve those mehcanisms to insure justice to their members and to impress upon the public that medicine can expeditiously and certainly keep its house in order.

Policy Adopted by the House of Delegates

Two actions of the House of Delegates taken during its June, 1955, session are worthy of comment: (1) the discharge of the Committee to Study Relations Between Osteopathy and Medicine; and (2) the adoption of Resolution No. 77 concerning optometry. It appears to the Judicial Council that the members of the Association should always bear in mind that the House of Delegates is the legislative body of the Association, and its official actions represent the position of the Association. The Judicial Council does not adopt policies. It interprets the Principles of Medical Ethics, the Constitution and Bylaws, and the policies of the Association that are adopted by the House of Delegates.

Members of the American Medical Association should also remember that the House of Delegates is a truly representative body through which the Association voices its opinion. Ample opportunity is provided for discussion and debate on all issues, and each member of the Association has the right to express his opinions before reference committees that carefully consider all resolutions presented to the House. Members who fail to exercise this prerogative should not complain. Members who disagree with policies that are adopted may propose amendments or revisions. All members, however, should realize that policies that have been adopted are binding on the Association until repealed or modified. The Judicial Council does not excuse conduct that conflicts with established policy because a member, a group, or others may not agree with it.

Osteopathy

For many years osteopathy has been designated as a cult by the American Medical Association. It is a practice that follows a dogma, tenet, or principle that is based on theories or beliefs of its promulgator to the exclusion of demonstrable, scientific experience. The Principles of Medical Ethics of the Association proscribe as unethical all voluntarily associated activities with cultists.

It appears to the Judicial Council that the House of Delegates, by discharging the Committee to Study Relations Between Osteopathy and Medicine, has not changed its policy in regard to the relationship of members of the American Medical Association with osteopaths. Therefore, the Judicial Council reaffirms the statement in its 1952 annual report: "Thus, in the absence of a directive from the House of Delegates, and in the absence of any alternative statement from the osteopaths themselves that they no longer adhere to their original cult theories, the Judicial Council reasserts its opinion that all voluntary associations with osteopaths are unethical." Only the House of Delegates can alter this policy and, until the House is convinced that osteopathy is no longer a sectarian practice and so votes, it is incumbent on the members of the Association to observe existing policy.

Optometry

Resolution No. 77, adopted by the House of Delegates in June, 1955, provides that "it is unethical for any doctor of medicine to teach in any school or college of optometry, or to lecture to any optometric organization, or to contribute scientific material to the optometric literature, or in any way to impart technical medical knowledge to nonmedical practitioners." The Judicial Council believes that this statement requires no clarification with the possible exception of the words "nonmedical practitioners." The Council is of the opinion that this phrase applies only to optometrists and does not include nurses, technicians, or other personnel working with doctors of medicine in the conduct of their professional activities.

For more than 30 years, the matter of relationship between doctors of medicine and optometrists has been before the House of Delegates. Specific action was taken in 1934, 1936, 1950, 1951, and 1955. The position of the Association during most of that period has been that voluntary associations with optometrists are unethical. A partial exception was made to that policy by action of the House of Delegates in 1950 when lectures, etc., to "nonmedical groups" were permitted if they were designed to prevent blindness. Nevertheless, the 1955 action rescinds the 1950 resolution.

At no time have optometrists been officially declared sectarian or cult practitioners. Indeed, according to the definition of sectarian practice as set forth in Chapter II, Section 1 of the Principles of Medical Ethics, it may be doubted that optometry is a sectarian practice comparable to osteopathy, chiropractic, or naturopathy. Optometry is a licensed occupation under most, if not all, state laws. Its function is to determine mechanical defects of the eye and to correct them by the prescription of proper lenses. Optometrists are neither qualified nor licensed to do more than ascertain if mechanical defects exist and to correct them when necessary. In the absence of mechanical defect, the optometrist should refrain from offering advice or treatment.

The Council was advised by the Director of the Law Department that no compilation of laws relating to the scope of optometric practice is readily accessible. The Council therefore recommended to the Law Department that it prepare for the House of Delegates a compilation of statutes, court decisions, and current legislation on the subject of optometry.

Resolution No. 77 provides that associations between doctors of medicine and optometrists are unethical. Thus, the House has reaffirmed that physicians, faithful to the ancient tenets of the medical profession, are ever cognizant of the fact that they are trustees of medical knowledge and skill and that they must dispense the benefits of their special attainments in medicine to all who need them; that it is a futile gesture to consult on a professional level with one who does not possess the same knowledge, training, experience, and ideals as the doctor of medicine.

In connection with osteopathy, the Judicial Council calls attention to the fact that the ethical proscriptions of Chapter II, Section 1 against voluntary associations with cultists must be construed strictly. When such an association is required by law or regulation of the state it can in no sense be considered voluntary and, therefore, is not unethical. The Judicial Council is of the opinion that it was not the intent of the House of Delegates to declare that relationships of doctors of medicine and optometrists, which are required by law, are unethical. Unless directed by the House of Delegates to the contrary, the Council will assume that the proscriptions contained in Resolution No. 77 apply to voluntary associations between doctors of medicine and optometrists and do not proscribe as unethical those associations that are required by law or regulation of the state.

Respectfully submitted,

Homer L. Pearson, Chairman.
Louis A. Buie.
Walter F. Donaldson.
J. Morrison Hutcheson.
George A. Woodhouse.
George F. Lull, Secretary.

REPORT OF COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

To the Members of the House of Delegates of the American Medical Association:

The Council on Medical Education and Hospitals submits the following report covering the period from Oct. 1, 1954, to June 30, 1955.

Throughout this period the Council has concerned itself with the various matters referred to it by the House of Delegates and in the conduct of its numerous established functions. The latter include the Council's program of survey and evaluation of medical schools, intern and graduate training, and technical school program evaluation. The report of the survey on postgraduate medical education has been prepared and published. In cooperation with other organizations interested in the problem, it has continued to study ways and means of evaluating the credentials, education, and professional qualifications of graduates of foreign schools. The Council has carefully studied the report of the Ad Hoc Committee on Internships of the House of Delegates and has revised the Essentials of an Approved Internship in keeping with its recommendations. The staff has endeavored to spare no effort in the preparation of the material for the four special issues of The Journal for which it is responsible during the course of the year, so as to make this material of maximum value to those who utilize it.

During the year the Council has endeavored to conduct its numerous activities and direct its efforts so as to contribute to and stimulate continuous study and advance in medical education at all levels. Such activities include accreditation of educational programs, compilation and dissemination of statistics, and preparation of information concerning undergraduate medical education, internships, graduate education as represented by residencies, postgraduate medical education, medical licensure, and related matters. They have also involved consultations, conferences, collaboration, liaison, and frequent intercommunication with an increasingly large number of schools, hospitals, agencies, organizations, institutions, and individuals interested in and concerned with medical education.

Problems Referred to the Council by the House of Delegates

INTERNSHIP

At its meeting in June, 1953, the House of Delegates authorized a special committee to study the general problems of intern training and placement. This *ad hoc* committee initiated its studies in February, 1954, and in April, 1954, held a conference with officers of the American Medical Association, the Council on Medical Education and Hospitals, the Association of American Medical Colleges, and the Student American Medical Association. The committee on internships carefully studied the Proceedings of the House of Delegates during the period from 1948 through 1953 and made an intensive review of the reports previously submitted by special committees that had been appointed to study this problem. These reports included those of the Bates Committee (1948), the Londrigan Committee (1950), and the Advisory Committee on Internships to the Council on Medical Education and Hospitals (1952). Subsequently, the Ad Hoc Committee on Internships, under the chairmanship of Dr. George Klump, conducted intensive studies that culminated in the report and recommendations submitted to the House of Delegates at its session in Miami in December, 1954.

The Reference Committee on Medical Education and Hospitals after review of the thorough and thoughtful report of the Ad Hoc Committee on Internships indicated that "the data and judgments of the Ad Hoc Committee on Internships will provide valuable guidance to the Council on Medical Education and Hospitals, and with this in view it is recommended that the report be referred to the latter for its further study and guidance." This report by the Reference Committee on Medical Education and Hospitals was adopted by the House of Delegates.

The Council on Medical Education and Hospitals subsequently carefully studied the reports of the Ad Hoc Committee on Internships and prepared a summary of the conclusions that had been reached as well as the recommendations suggested by the committee. The Council believes the conclusions and recommendations reached by the Ad Hoc Committee on Internships are eminently sound and that they should be incorporated into the principles and policies employed in the conduct of the internship approval programs and included in revisions of the Essentials of an Approved Internship. However, the Council felt it desirable to submit this summary of conclusions and recommendations, prepared from the reports of the Ad Hoc Committee on Internships, to the House of Delegates for its consideration and approval before modifying the Essentials of an Approved Internship in keeping with them. The Council, therefore, presented a summary report to the House of Delegates that was published in the May 7, 1955, issue of THE JOURNAL and that was also included in the Handbook for the information of members of the House of Delegates at the June, 1955, meeting in Atlantic City. The Reference Committee on Medical Education and Hospitals, after reviewing the report of the Council, indicated that it was in agreement with the Council that the conclusions and recommendations of the Ad Hoc Committee on Internships are eminently sound and should be incorporated into the principles and policies employed in the conduct of internship approval programs, including the subsequent revisions of the Essentials of an Approved Internship. The reference committee then indicated that "Your committee wishes specifically to reaffirm the following recommendations of the Ad Hoc Committee on Internships: (1) that a continuing study be made as to what should be the content of an internship, what constitutes sound clinical experience during the internship year; (2) that the 'one-fourth rule' be adopted; any internship program that in two successive years does not obtain one-fourth of its stated complement be disapproved for intern training." The House of Delegates adopted the report of the reference committee.

During the Atlantic City meeting, two resolutions were introduced into the house that further supported the position of the Ad Hoc Committee on Internships and the long-standing position of the Council in the educational aspect of the internship. Resolution No. 51 on Educational Standards of the Internship and Resolution No. 53 on the Nature of the Internship were strongly endorsed in principle by the Reference Committee on Medical Education and Hospitals with the recommendation that they be included in the principles and policies employed by the Council and in the conduct of its internship approval programs including subsequent revisions of the Essentials of an Approved Internship. The report of the reference committee was adopted by the House of Delegates.

Following the adoption by the House of the conclusions and recommendations of the Ad Hoc Committee on Internships and resolutions No. 51 and 53, the Council's Committee on Essentials carefully reviewed its Essentials of an Approved Internship and undertook their revision. Subsequently, the Council has studied the revisions as recommended by the Committee on Essentials and has approved of their presentation to the House of Delegates for consideration and formal adoption. A complete statement of the revised Essentials of an Approved Internship, together with a summary of the changes approved by the Council, will be included in the Handbook of the House of Delegates as Appendix A, to permit careful study and review by all members of the House.

The Council is fully cognizant of the fact that there will continue to be problems in connection with the internship. However, very careful study has been given to this important matter, and it is believed that the recommended revision of the Essentials of an Approved Internship will do much to minimize some of the current difficulties and to maintain the educational nature of the internship in keeping with the stated resolutions adopted by the House of Delegates and the efforts of the Council on Medical Education and Hospitals to insure that these objectives are not submerged by service factors.

RESOLUTIONS ON GENERAL PRACTICE OF MEDICINE

The reference committee at Miami in 1954 recommended "that the House of Delegates refer this resolution (Resolution No. 22 on General Practice) concerning the general practice of medicine to the Board of Trustees, because the resolution covers more than is within the scope of the Council on Medical Education and Hospitals, because it is stated that the Commission on Education of the American Academy of General Practice is instituting a similar study, and because the implementation of this resolution required funds." However, because of the general interest in this area, the Council on Medical Education and Hospitals in its annual accumulation of data concerning medical education inquired into the activities of medical schools in this phase of medical education. Data regarding preceptorships in undergraduate medical education, internship, and graduate residency programs in general practice, courses, programs, etc., are reported in the Council's current reports on Medical Education in the United States and Canada in the Oct. 8, 1955, issue of THE JOURNAL and in the Directory of Approved Internships and Residencies published in the Sept. 24, 1955, issue of THE JOURNAL.

RESOLUTION NO. 28 ON POLICY OF MEDICAL PRACTICE BY TAX-SUPPORTED MEDICAL SCHOOLS

This resolution, presented to the House of Delegates at Miami in December, 1954, was referred to the Reference Committee on Medical Education and Hospitals. The reference committee recommended that the resolution be referred, without approval or disapproval at that time, to the Council on Medical Service, which was then undertaking a thorough study of the various aspects of this subject.

Because of the general importance of clarification of some of the problems that have arisen in this area, the Council on Medical Education and Hospitals has cooperated with the Council on Medical Service, the Association of American Medical Colleges, and the American Hospital Association in an effort to obtain factual data from the medical schools. The Council participated in the preparation of a questionnaire designed to furnish information by the schools, which was sent to them by the Liaison Committee on Medical Education. The response to this questionnaire has been excellent. Since problems centering around the practices of medical schools in the employment of "strict full time" and "geographic full time" clinical faculty personnel have been of increasing concern in certain areas, it is deemed advisible to collect factual information as a basis for further study. Since important issues of this type are not solved by "ducking them" the Council is planning to devote the morning session of its next Congress program on Feb. 13, 1956, to a symposium cosponsored by the Council on Medical Service to present facts and discussion in relation to problems in this area of concern to medical schools and to the profession.

RESOLUTION ON CHIROPRACTIC EDUCATION

In December, 1953, the House of Delegates approved a resolution requesting the Council on Medical Education and Hospitals to investigate the quality and content of chiropractic education and subsequently report its findings. Efforts were made by the Council to determine how this could best be accomplished. After careful study and preliminary contacts between Council staff members and representatives of the chiropractic schools, the Council reported that its considered opinion is that the evaluation of the quality and content of chiropractic education does not belong within the field of its activities and should be undertaken through other established channels or through an outside agency engaging in an objective analysis. The Board of Trustees was in agreement with the report and recommendations of the Council and recommended its adoption by the House of Delegates. The Reference Committee on Medical Education and Hospitals at Atlantic City in June, 1955, concurred in the recommendation of the Board of Trustees and its report was adopted by the House of Delegates.

Resolution No. 14 on Residency Training in Pediatrics

A resolution on residency training in pediatrics was introduced (Resolution No. 14) at Atlantic City in June, 1955, and was referred to the Reference Committee on Medical Education and Hospitals. The staff of the Council assisted the reference committee in its study of the resolution by furnishing information concerning the organization, officers, responsibilities, and procedures of the residency review committees in the various specialties. The reference committee, in recognizing some of the problems involved in effectively working out the newly developed residency review programs, urged the Council to make every effort to expedite the approval of residencies in hospitals and the actions of the residency review committees as rapidly as is consistent with sound, practical consideration. The resolution was referred to the Council on Medical Education and Hospitals after the report of the reference committee to the House of Delegates, and the Council is endeavoring to expedite the approval of residencies by the residency review committees as rapidly as is consistent with sound policy.

Resolution No. 45 on Postgraduate Medical Education and Pharmaceutical and Drug Houses

At the June, 1955, meeting the Reference Committee on Medical Education and Hospitals referred Resolution No. 45 on Postgraduate Medical Education and Pharmaceutical and Drug Houses to the Council on Medical Education and Hospitals. The reference committee indicated that it was in agreement with the intent of the resolution and in its recommendation suggested that the Council continue to study the whole problem of postgraduate medical education including a study of the conditions under which physicians may participate in programs sponsored by nonprofessional groups.

In the meantime, in view of its increasing importance, the Council has requested the establishment of a permanent staff position for an Assistant Secretary in the field of postgraduate medical education. The Board of Trustees has approved this request so that continued study of this entire area is assured. At the time of preparation of this report, the specific problem presented by Resolution No. 45 is being studied. It is anticipated that a statement directed toward the incorporated resolutions will be prepared by the Council at its December, 1955, meeting to serve as a guide towards achieving the intent of the resolution.

Resolution No. 82 on the Exclusion of Obstetrics and Gynecology from a Straight Internship

Resolution No. 82 on the Exclusion of Obstetrics and Gynecology from a Straight Internship, introduced at the Atlantic City meeting, was referred to the Council on Medical Education and Hospitals by the reference committee for its careful consideration. The question of straight internships versus rotating and mixed internships has been given long and serious consideration by the Committee on Essentials, by the Council, and by the Ad Hoc Committee on Interships. In its report the latter committee indicated that in its opinion a properly organized rotating internship is the one type that will insure the broad clinical hospital experience that is believed desirable for every graduate of a medical school regardless of the individual's plans for his future professional career.

At its meeting in February, 1955, the Committee on Essentials of the Council discussed the question of straight internships in pathology, obstetrics, and gynecology at length. The Committee was unable to obtain complete agreement in its considerations of the Council's previous action in eliminating from approval straight internships in pathology and in obstetrics and gynecology. There was general agreement, however, that the best internship for any career in clinical medicine is a well-conceived rotating internship. It was further agreed that in special circumstances a straight internship might be justifiable, but an agreement could not be reached as to where to draw the line. The Committee believed, for example, that a straight internship in internal medicine could be a thoroughly good internship, while it felt that a straight internship in certain of the narrower specialties would not fit into the category of acceptable training needed to furnish the desired over-all experience that should be contained in the internship. The Committee, furthermore, felt that a straight internship, particularly in a subspecialty area, is in essence the first year of residency training. Because of its lack of complete agreement in regard to straight internships in fields other than medicine, surgery, pediatrics, and pathology, the Committee on Essentials recommended that the problem be considered by the Council as a whole.

Subsequently, the Council carefully reviewed the matter of approval of straight internships in pathology and in obstetrics and gynecology. It was generally agreed that approval of straight internships in pathology is logical, even though pathologists themselves had been initially divided as to whether or not rotating internships should be required first. However, the broad base of pathology is of such nature that the over-all experience in a well-designed internship year can effectively furnish a comprehensive background experience. On the other hand, it is believed that obstetrics and gynecology represents a subspecialty of a surgical nature and that a straight internship in this area has more limited initial value and that individuals entering this field would be considerably better off if they had previously experienced a well-designed year of rotating internship.

The Council on Medical Education and Hospitals voted (a) to endorse the continued approval of straight internships in pathology, (b) that, with the exception of the four specialties in which the Council has agreed to recognize a straight internship, namely, medicine, surgery, pediatrics, and pathology, straight internships in other fields be not recognized, and (c) that straight internships in obstetrics and gynecology be discontinued after June 30, 1957.

Standing and Special Committees

The Council continues to have numerous standing and special committees assigned to specific tasks engaged individually or in cooperation with organizations concerned with certain areas of its activity. Each of these committees includes both Council and staff members and makes studies, reports, and recommendations to the Council for appropriate action. Currently existing standing and special committees are given below.

Standing Committees

Liaison Committee on Medical Education, which closely cooperates with the executive council of the Association of American Medical Colleges.

Liaison Committee of the Council and Advisory Board for Medical Specialties, which concerns itself with matters of mutual interest to the Council and the various specialty boards.

Committee on Essentials, which is responsible for review, revision, and recommendations regarding the essentials underlying the numerous programs involving approval or accreditation in which the Council is engaged.

Committee on Needs of the Armed Services, which cooperates with the various governmental agencies in matters pertaining to medical education.

Liaison with the Council on Medical Service in its Committee on Indigent Medical Care Programs.

Liaison with the American Hospital Association's Council on Professional Practices in the area dealing with specialists in allied fields (technical, etc.).

Special Committees

Committee on Postgraduate Medical Education, which aided in the conduct of the recently completed survey of postgraduate medical education in the United States and will actively aid in the orientation of the future activities of the Council in this important field.

Cooperating Committee on Graduates' of Foreign Medical Schools, which, in addition to representatives of the Council, consists of representatives from the Federation of State Medical Boards of the United States, the Association of American Medical Colleges, and the American Hospital Association. It is endeavoring to develop a mutually satisfactory program for the evaluation of the credentials and professional competence of graduates of foreign medical schools.

Committee on Licensure, cooperating with the Federation of State Medical Boards and the Association of American Medical Colleges in problems of licensure as related to medical education.

Joint Commission on Medical Education in Time of National Emergency, which is composed of representatives of the Council and the Association of American Medical Colleges in cooperation with the Armed Forces Medical Services, Selective Service System, United States Public Health Service, and other governmental agencies in matters involving undergraduate and graduate medical education.

Committee on Accreditation of Paramedical Schools, which is composed of Council and staff members who work in collaboration with the recognized national organizations representing the various groups involved.

Internship Review Committee, which studies and evaluates internship programs and recommends action regarding approval to the Council.

Residency Review Committees, which have been developed for cooperative evaluation of residency training programs with representation from the Council, the individual specialty boards, and certain specialty colleges such as the American College of Surgeons and the American College of Physicians. At the present time there are 16 residency review committees actively functioning, an increase of 5 since the last annual report. The current status of these committees is described in the section of this report dealing with Hospitals and Graduate Education. As yet there are no residency review committees in anaesthesiology, obstetrics and gynecology, pathology, or thoracic surgery.

In addition to these standing and special committees, the Council on Medical Education and Hospitals actively participates with many other organizations and activities in areas of activity closely related with or impinging on the area of medical education. Such activities include:

Joint Commission on Accreditation of Hospitals
National Internship Matching Program
Advisory Council and Trustees of the National Fund for Medical Education
American Medical Education Foundation (secretary-treasurer and directors)
National Board of Medical Examiners
Federation Bulletin, published by the Federation of State Medical Boards of the United States (associate and assistant editors)
Selective Service System—Healing Arts Educational Advisory Committee
Education and Training Division, Surgeon General's Office, Department of the Army
Committee on Financial Needs of the Medical Schools

Both Council and staff members, in addition, collaborate with many other organizations and agencies that have active interest in one or several phases of medical education. Such collaboration is undertaken in the form of conferences, discussions, correspondence, and consultations and represents a very large group of organizations and agencies. Cooperation and effective intercommunciation between the Council and these other groups directed towards mutual understanding and collaboration is one of the most demanding functions of the Council, not solely in terms of time and energy but also from the standpoint of basic significance. The very close and effective liaison collaboration between the Council and the Association of American Medical Colleges, the Advisory Board for Medical Specialties, the American College of Surgeons, the American College of Physicians, the Joint Commission on Accreditation of Hospitals, and certain committees of the American Hospital Association are of increasing mutual value.

Annual Congress on Medical Education and Licensure

Setting a new attendance record, the fifty-first Annual Congress on Medical Education and Licensure, held Feb. 5 to 8, 1955, in Chicago, attracted a total registration of 684 medical educators, practicing physicians, and representatives of state licensing boards, specialty boards, and medical societies. The four-day session was sponsored by the Council on Medical Education and Hospitals, the Federation of State Medical Boards, and the Advisory Board for Medical Specialties.

The entire opening day was devoted to a symposium on the potentialities of television in postgraduate medical education and the methods and techniques of employing television in this area of education. A panel discussion on legal medicine urged that medical schools make their students aware of the many potential medicolegal problems of medical practice and how they may best be avoided. Other major topics were the future of the internship, a uniform medical practice act, and a proposed program for evaluation of graduates of foreign medical schools.

For the next Annual Congress, to be held in February, 1956, a joint committee of the Council and the Advisory Board for Medical Specialties is already completing plans for a full day's consideration of graduate medical education. Other subjects to be given major attention include the role of the medical library in medical education and practice and problems centered about the contractual arrangements of medical schools with their full-time clinical faculties. It is anticipated that a full discussion of these subjects so important to the future of medicine will provide a guide for further consideration and eventual resolution of problems related to these matters.

Medical School Surveys

During the past year medical schools at the following institutions were surveyed as part of the accreditation program in conjunction with the Association of American Medical Colleges:

Indiana University School of Medicine
St. Louis University School of Medicine
University of Toronto Faculty of Medicine
George Washington University School of Medicine
University of Louisville School of Medicine
Emory University School of Medicine
Duke University School of Medicine
University of Southern California School of Medicine
University of California at Los Angeles School of Medicine
University of California at San Francisco School of Medicine
University of Montreal Faculty of Medicine
New York Medical College
University of Ottawa Faculty of Medicine
University of Virginia School of Medicine

In all instances, the educational programs at these institutions were approved by joint action of the Council on Medical Education and Hospitals and the executive council of the Association of American Medical Colleges.

The Medical School of the University of California at Los Angeles initiated its full four-year program, and its approval constituted an addition to the list of approved schools. The College of Medicine at Howard University was visited by a representative of the two accrediting organizations to interpret findings of the last formal survey of the medical school to the Middle States Association, which was conducting an over-all evaluation of Howard University. An informal visit was made to Western Reserve University to gather first-hand information in regard to the medical educational experiment being conducted at that institution. Liaison visits were made to the medical schools at the University of Florida, Seton Hall University, and Yeshiva University for consultations with these newly developing schools.

Plans have been completed for liaison survey visits during the academic year 1955-1956 to the following medical schools:

State University of New York College of Medicine, Syracuse
University of South Dakota School of Medical Sciences
University of Miami School of Medicine
University of Maryland School of Medicine
Tulane University School of Medicine
Jefferson Medical College
University of Nebraska College of Medicine
Cornell University Medical College
Dartmouth Medical School
McGill University Faculty of Medicine
University of Vermont College of Medicine
Queens University Faculty of Medicine
University of Alberta Faculty of Medicine

Division of Hospitals and Graduate Medical Education

The Council's activities for many years have encompassed two broad areas of interest—undergraduate medical education as conducted in medical schools and graduate medical education as carried out by medical staffs in hospitals throughout the country. During the past 10 years, this latter area has come to assume a position of increasing importance as a result of the marked expansion of residency training that has occurred and the consequent greater emphasis on this phase of medical education. Accordingly, two years ago, a Division of Hospitals and Graduate Education was established to coordinate and administer the Council's program in this general area.

The division includes a director, two assistant directors, an administrative assistant, and a clerical staff. Its activities are divided roughly into three main categories—residencies, internships, and the paramedical fields including technical schools. The division, acting through committees set up in collaboration with other organizations, is responsible, under policies as determined by the Council and the House of Delegates, for the establishment of standards of training in those fields, for the hospital inspection program as it relates to the educational activities of the hospital, and for the development of lists of hospitals in which Council approved programs are being conducted. The assistant directors and director, through correspondence and personal interviews, provide consultative services to medical staffs and administrators of hospitals developing or reorganizing their training programs. New applications for approval are reviewed at the staff level before arrangements are made for a survey by a member of the field staff. In view of the expense involved, such a preliminary screening is necessary to obviate the scheduling for inspection of a hospital whose teaching potential is obviously below standard.

In addition to direct and indirect communication with physicians and administrative personnel throughout the country, the division maintains active liaison with all 19 American Boards in the medical specialties and with the Advisory Board for Medical Specialties, the American Academy of General Practice, the American College of Physicians, the American College of Surgeons, the National Intern Matching Program, and various other agencies concerned with medical education at the graduate and technical school levels. The director and staff of the division are also responsible for the preparation of the Council's Annual Report on Internships and Residencies that appears in The Journal in late September, for the publication at four-month intervals of the Residency Information Bulletin, for revisions to the Essentials of Approved Internships and the Essentials of Approved Residencies and Fellowships, as authorized by the Council and the House, and for the preparation of forms, reports, and other material pertaining to the division's activities.

Hospital Survey Program

At present there are eight physicians employed in a full-time capacity as field representatives of the Council, with an additional position temporarily unfilled. During the last reporting period, Oct. 1, 1954 to June 30, 1955, they visited 545 hopsitals. This figure is appreciably higher, on a proportionate basis, than a year ago, when 574 hospitals were reported visited during the full 12 month period—that is, an average of 7.5 hospitals per man per month, as contrasted with 6.0 hospitals per man per month for the preceding year. While these averages may not seem particularly high, it should be appreciated that, in the majority of hospitals visited, the staff representative completes a survey for the Joint Commission on Accreditation of Hospitals in addition to reviewing the internship and residency programs that the hospital may be conducting. When such a survey is done for the Joint Commission, approximately 50% of the time spent at the hospital is devoted to the evaluation of the organizational and administrative aspects of the hospital and of the professional activities of the staff, factors in which the Joint Commission is interested. The remaining time is spent in the evaluation of the internship and residency programs being conducted at the hospital.

For the current reporting period, Oct. 1, 1954, through June 30, 1955, the following reports were submitted by the Council's field representatives: 225 Joint Commission surveys; 264 internship programs; and 1,684 residency programs. Each member of the field staff is responsible for the review and evaluation work in the territory assigned to him, which includes from 140 to 150 hospitals. One member of the staff has an assignment in which he spends approximately half his time in doing routine surveys in hospitals in his territory with the rest of the time spent in making visits to hospitals throughout the country where special problems have arisen. This assignment has been set up to expedite consideration of reapplications for approval. The responsibility for reviewing programs ranging from those at the internship level to those involving highly specialized fields is one requiring an intelligent and constructive approach. The Council's approval program depends to a large extent on the effectiveness with which the field staff carry out their obligations. The Council wishes to acknowledge the invaluable contribution that these physicians make to its over-all program and to express its appreciation for their untiring efforts in making the program a success.

Residency Review Committees

Since last year's report, residency review committees have been established in five additional fields—dermatology, general practice, ophthalmology, plastic surgery, and urology. The Council now collaborates in the approval of residency programs directly with the American Board concerned in all specialties, with the exception of anesthesiology, obstetrics-gynecology, pathology, and thoracic surgery. In these latter specialties, the Board concerned acts in cooperation with the Council in approving residency programs but takes action without direct liaison or consultation between the two groups. In the fields of internal medicine, the American College of Physicians has representation on the Residency Review Committee, as well as the Council and the American Board of Internal Medicine. In general surgery and otolaryngology the committee includes representatives from the American College of Surgeons as well as from the Council and the two Boards, namely, the American Board of Surgery (Conference Committee on Graduate Training in Surgery) and the American Board of Otolaryngology (Residency Review Committee for Otolaryngology). The Residency Review Committee for General Practice has representation from the Council and the American Academy of General Practice.

These 16 committees have been established over the past four years to coordinate the work of the Council, the Boards, and other organizations directly interested in residency training and to expedite action on applications for approval. The committees, in most instances, are empowered to act in behalf of the Council and the other organizations represented in approving residency programs. They act in a recommendatory capacity to the parent organizations with respect to policy matters and training requirements. These committees have functioned effectively during the past year in evaluating and passing on the applications that came before them. They have enabled the Council to carry out its responsibilities in this area in a much more satisfactory and efficient manner. The Council would like the House of Delegates to know that it has had the complete cooperation and support of the American Boards, the Colleges, and the Academy of General Practice is establishing these committees on a sound basis. The Council conversely has given its full support and cooperation to the collaborating organizations in furthering the objectives of these committees. The director of the division serves as secretary of the committees.

One of the problems confronting the committees concerned with residency approval is the status of so-called "partial training" programs. These programs offer less than full training in the specialty, which is entirely independent of and unrelated to further training that would lead to qualifying in that field. In the interest of insuring a continuity of training and progressive responsibility for the resident staff, the residency review committees for a number of specialties have set a time limit after which hospitals, either independently or through affiliation, must provide full training in the specialty in order to qualify for continued approval (Editorial, *J. A. M. A.* 159:378 [Sept. 24] 1955). This policy has been in effect for some time in the following specialties: anesthesiology, the medical subspecialties (allergy, cardiovascular diseases, gastroenterology, and pulmonary diseases), otolaryngology, surgery (general), and plastic surgery. A similar policy has been announced to apply in the fields of pediatrics, orthopedic surgery, radiology, and urology. The Council believes that, in terms of principles of medical education, the requirement of "full training" in a specialty is eminently sound. As pointed out in the editorial referred to above, permitting a resident to complete his training in several unrelated programs is comparable to permitting a medical student to qualify for his doctorate degree by taking a freshman year in four different medical schools. With the residency program having stabilized to a considerable extent after the rapid expansion that occurred in the postwar period, the Council is of the opinion that the move in the direction of developing fully integrated, complete training in which the resident would have continuity of supervision and progressive responsibility is timely and in the interest of the resident as well as of improving standards of training.

Advisory Board for Medical Specialties

During the past nine months, three meetings of the Liaison Committee with the Advisory Board were held to discuss matters of mutual interest. One of the subjects of major consideration was the revision of the Essentials of an Approved Examining Board in the Medical Specialties. These revised Essentials are being presented to the House of Delegates at the Boston meeting for consideration for adoption. Among other matters discussed with Advisory Board representatives were policies relating to the approval of residency programs in Veterans Administration hospitals; the approval of the proposal of the American Board of Preventive Medicine to certify in occupational medicine; problems relating to graduates of foreign medical schools; a discussion of the report of the House of Delegates Committee on General Practice Prior to Specialization, as well as of the study by the Council on Medical Service of full-time salaried positions in medical schools; and the study by a special committee of the Board of Trustees and the Council on the relationship of organized medicine to the paramedical fields. The Liaison Committee serves as a mechanism for an interchange of information on matters relating to residency training in which both the Council and the Advisory Board have an interest. The Council appreciates the fine cooperation that it has enjoyed with the Advisory Board over the past years and looks forward to a continuance of the present excellent relationship.

Examining Boards in the Medical Specialties

No new boards have been considered for approval since the Council's last report to the House. The application for an American Board of Medical Microbiology was tabled pending completion of the study to clarify the relationships of American medicine to other professional and technical groups concerned with the care of the patient. A special committee of the Board of Trustees and the Council now has the matter under advisement.

Informal inquiries have been made from a group interested in establishing a board or subboard in the field of psychoanalysis. No formal application, however, has been submitted to date. The Council has been informed that consideration is being given to certification in the subspecialty of the surgery of trauma. No inquiry in this regard, direct or indirect, has been made to the Council's office.

The number of approved examining boards in the medical specialties remains at 19, the same as in last year's report. The Council and the Advisory Board have agreed as a matter of principle that the development of "new" specialties should, as far as can be foreseen, be within the framework of presently constituted boards rather than as independent certifying bodies.

Internship Section

The Internship Section is responsible for compiling statistical data and lists of hospitals approved for intern training for annual publication in the Internship and Residency Number of The Journal of the American Medical Association. It collaborates with the National Intern Matching Program in correlating the activities of that organization with the internship program of the Council. It has been engaged during the past year in developing a consolidated list of all hospitals approved for intern training since 1914. This list is of considerable value to state boards of medical examiners, the specialty boards, and other agencies whose requirements include the completion of a Council approved internship. The project involved considerable research of Council records and reports in developing a list of hospitals approved by the Council and the periods during which their internships were approved.

The activities of the section are the responsibility of one of the assistant directors, who also serves as secretary of the Internship Review Committee. During the study made by the Ad Hoc Committee on Internships, he also served in the capacity of staff assistant to that committee.

Internship Review Committee

The Internship Review Committee was established early in 1954 and since its organization has functioned effectively. This is a permanent committee of the Council composed of members of the Council and representatives of the following organizations:

American Hospital Association
Association of American Medical Colleges
American Academy of General Practice
Federation of State Medical Boards in the United States

The committee acts in an advisory capacity to the Council in recommending approval or disapproval of new and currently approved intern training programs. It is responsible for evaluating the adequacy of internship programs on the basis of the report of the Council's field representative and of the data submitted by the hospital at the time of inspection. The committee acts in a recommendatory capacity also on matters of policy and internship training requirements. The organizational meeting of the committee was held in San Francisco in June, 1954. Since then, the committee has met just prior to each regular meeting of the Council. Prior to the meeting, the report of survey of an internship is reviewed by a committee member; the application for approval is then considered by the committee as a whole and appropriate action recommended to the Council. Each report is carefully considered in detail before such recommendation is made.

This committee is studying the problems and the content of the internship on a continuing basis. It makes recommendations to the Council with the objective of maintaining sound educational standards that will insure a year of satisfactory clinical experience and training during the internship.

Ad Hoc Committee on Internships

When the Ad Hoc Committee on Internships presented its final report to the House of Delegates in December, 1954, the Reference Committee on Medical Education and Hospitals referred it to the Council on Medical Education and Hospitals for its study and guidance. This report was the result of an exhaustive study of the internship and its problems and included specific conclusions and recommendations. The Council carefully studied the report and presented a summary to the House of Delegates in June, 1955, which was adopted. The conclusions and recommendations of the Ad Hoc Committee on Internships, as recommended by the Council and adopted by the House, have been incorporated in a revision of the Essentials of an Approved Internship, which the Council is presenting to the House of Delegates for consideration for adoption at this meeting. A résumé of the various studies of the internship including that of the Ad Hoc Committee is presented earlier in this report.

National Intern Matching Program

The National Intern Matching Program has completed four years of successful operation as the agent for appointing medical school graduates to internships in hospitals approved for this training by the Council on Medical Education and Hospitals.

The Ad Hoc Committee on Internships, in studying the problems of the internship, gave detailed attention to the Matching Program, its policies, and its method of operation. As a result of this study, the committee concluded: "It is the opinion of this committee that the mechanical plan of matching interns and hospitals, as accomplished by the National Intern Matching Program, is more efficient than any other plan previously used and gives full effect to the freely expressed desires of both hospital and intern with complete objectivity. The committee approves of the Matching Plan."

It should be noted that a number of other organizations interested in intern training along with the Council on Medical Education and Hospitals determine the policies under which the program operates. These are the American Hospital Association, American Protestant Hospital Association, Catholic Hospital Association, and Association of American Medical Colleges.

Also on the policy-making committee are two medical student representatives, of which one is appointed by the Student American Medical Association and the other is a student delegate at large. Each of the federal services conducting intern training programs has a liaison representative to the committee.

Hospitals participating in the program are limited to those approved by the Council on Medical Education and Hospitals for the training of interns. The directory of hospitals participating in the program, based on the Internship and Residency Number of THE JOURNAL, is sent to all applicants for internships and to all American medical schools. The Matching Program also sends to each participating senior medical student a pamphlet explaining in detail its purpose and its method of operation.

Due to the efforts made by the program to clarify its operations, there is now a much better understanding of its work than previously existed. The program is the official and generally accepted method of appointing interns.

For the year 1955-1956, more than 98% of the hospitals approved by the Council for intern training participated in the Matching Program. Approximately 96% of the medical students graduating in 1955 participated. Of 6,713 seeking appointments through the program, 6,379 (95%) were matched with hospitals desiring their services. Of this number, 75% were matched with hospitals they had listed as their first choice, 14% were matched with hospitals listed as second choice, and 10% were matched with hospitals listed as third, fourth, or other choice. A total of 334 students were not matched. The number of unmatched participants is attributed to the fact that, in general, they had applied to a limited number of hospitals resulting in restricting their chances for appointment, since the hospitals listed had filled their quotas with applicants whom they preferred or did not wish to appoint the particular student as intern. Of the hospitals participating in the Matching Program, 16% completely filled their intern quotas, 52% partially filled their quotas, and 32% had no interns matched. Student participation in the Matching Program is expected to increase slightly for the year 1956-1957. Approximately the same number of hospitals are participating in the Matching Program for 1956-1957 as participated during 1955-1956.

Joint Commission on Accreditation of Hospitals

As noted earlier in this report, the members of the field staff serve in a dual capacity in their visits to hospitals throughout the country—first as Council representatives interested in the educational programs conducted at the hospitals, and secondly as field representatives of the Joint Commission on Accreditation of Hospitals. In this latter capacity, they are concerned with the organizational and administrative aspects of the hospital and in those factors that relate to the professional care of the patient. The staff members carry out their responsibilities in this regard under policies and procedures established by the Joint Commission. Their survey reports, along with those from the field staffs of the other organizations on the Joint Commission—American College of Surgeons, American College of Physicians, and American Hospital Association—are submitted directly to the office of the Joint Commission where they are evaluated and recommendations are made to the Commission for accreditation or nonaccreditation as the case may be.

The dual responsibilities of the Council's staff have given rise to some problems in the past. The director of the Joint Commission has arranged a round table conference each year for the field representatives of all organizations, at which mutual objectives, procedures, and policies are discussed. These conferences have been of considerable help in clarifying some of the problems presented and have furnished a means of intercommunication that has been of mutual benefit to all participants.

Pending completion of the special study of the Joint Commission program as authorized by the House, the Council will continue to carry out its responsibilities to the Joint Commission on the basis of present commitments.

Technical School Section

The Council collaborates with a number of organizations in the development of standards for and approval of technical training for the following personnel: medical record librarians; medical technologists; occupational therapists; physical therapists; and x-ray technicians. An assistant director in the Division of Hospitals and Graduate Education coordinates the Council's activities in these fields. In addition he is responsible for the staff work on any matters referred to the Council relating to the so-called paramedical fields—that is, those involving personnel at the professional and technical level whose services contribute to the care of the patients.

The assistant director of this section furnished staff support to the joint committee of the Board of Trustees and the Council that was established to study the question of the American Medical Association's relationships with these groups. He also assists the director of the division in carrying out the administrative functions of the several residency review committees.

One of the major projects of this section during the past year has been the development of a revision of the standards for a school of physical therapy. It has been noted earlier in this report that a revision of these Essentials has been under consideration for almost three years. The draft that is being presented to the House at this meeting represents the final effort of the Council's Essentials Committee after prolonged study and consultation with other groups directly interested in the matter, including the Council on Rehabilitation.

The extent to which the activities of this section can be expected to develop will depend in large measure on the policy that will be established governing the Association's relationships with other professional and technical groups in the health field.

Inspection of Hospitals and Technical Schools

Inspections of hospitals and technical schools made by the Council during the period Oct. 1, 1954, to June 30, 1955, are summarized below.

Accreditation only (Joint Commission)	34
Intern training	47
Residency training	252
Intern and residency training	209
Technical schools	3
Total	545
Intern programs reviewed	264
Residency training programs reviewed	1,684
Joint commission surveys	225
Total	2,173

Summary of Hospitals and Technical Schools

Figures for approved hospitals and technical schools with changes occurring during the period Oct. 1, 1954, to June 30, 1955, are given below.

Internship Approval	
Hospitals approved for intern training, Oct. 1, 1954	848
Approved to June 30, 1955	37
Removed from approved list	20
Hospitals approved for intern training, June 30, 1955	865
Residency Approval	
Hospitals approved for residency training, Oct. 1, 1954	1,186
Approved to June 30, 1955	30
Removed from approved list	22
Hospitals approved for residency training, June 30, 1955	1,194
Residency Training Programs	
Programs approved for residency training, Oct. 1, 1954	4,844
Approved to June 30, 1955	221
Removed from approved list	153
Programs approved for residency training, June 30, 1955	4,912
Medical Technology Schools	
Approved schools, Oct. 1, 1954	585
Approved during period	36
Removed from approved list	26
Approved schools, June 30, 1955	595
Medical Record Librarian Schools	
Approved schools, Oct. 1, 1954	25
Approved during period	2
Removed from approved list	2
Approved schools, June 30, 1955	25
Occupational Therapy Schools	
Approved schools, Oct. 1, 1954	28
Approved during period	1
Removed during period	0
Approved schools, June 30, 1955	29
Physical Therapy Schools	
Approved schools, Oct. 1, 1954	34
Approved during period	1
Removed from approved list	0
Approved schools, June 30, 1955	35

X-Ray Schools	
Approved schools, Oct. 1, 1954	382
Approved during period	45
Removed from approved list	5
Approved schools, June 30, 1955	422
Schools for Medical Record Technicians	
Approved schools, Oct. 1, 1954	6
Approved during period	1
Removed from approved list	0
Approved schools, June 30, 1955	7

Survey of Postgraduate Medical Education

This two and a half year study directed by Dr. Douglas D. Vollan of the Council staff was completed during the past year and reported as a series of eight separate articles that appeared in The Journal under the following titles:

The Scope and Extent of Postgraduate Medical Education in the United States
The Physician as a Lifelong Student
The Objectives and Content of Postgraduate Medical Education
Educational Methods in Postgraduate Teaching
Time and Place Arrangements of Postgraduate Courses for Practicing Physicians
Sponsorship and Administration of Postgraduate Medical Education
Financing Postgraduate Medical Education
The Future of Postgraduate Medical Education

The material in these articles represents the most comprehensive review of this important field ever undertaken, and it is planned that the series be collected together with pertinent appendicial material and published in composite form, which will serve as a valuable reference work on this subject. The recommendations that evolved from this study in regard to future activities of the Council in this area are currently under consideration.

Cooperating Committee on Graduates of Foreign Medical Schools

This committee, with representatives of the Council on Medical Education and Hospitals, the Federation of State Medical Boards, the Association of American Medical Colleges, and the American Hospital Association, was formed as a result of action of the House of Delegates in June, 1954. During the past year the committee developed the basic outline of a proposed program for evaluating graduates of foreign medical schools that was accepted in principle by the four participating organizations. This proposal was studied by the Law Department, and the Cooperating Committee is currently in the process of attempting to modify the program in a manner that will surmount the legal difficulties and at the same time allow for the accomplishment of the desired objectives.

Revisions of Essentials

In cooperation with other interested organizations, the Council has prepared revisions of the Essentials in several fields and suggests that the House of Delegates consider their adoption. These revised Essentials are presented in the following appendices, which will be included in the Handbook of the House of Delegates:

Appendix A: Essentials of an Approved Internship.—The Council has revised these Essentials incorporating the recommendations of the Ad Hoc Committee on Internships.

Appendix B: Essentials of Approved Residencies and Fellowships.—Two additions to the General Requirements section and three revisions of the Special Requirements section of these Essentials are proposed. This appendix includes these five items only, since it was considered inadvisable from the point of view of saving the time of the House of Delegates and because of the expense involved in reproducing the entire 55 page document as previously adopted.

Appendix C: Essentials of Approved Examining Boards in the Medical Specialties.—This revision has been approved by the Council and also by the Liaison Committee of the Council and the Advisory Board for Medical Specialties.

Appendix D: Essentials of an Acceptable School of Physical Therapy.—The revision of Essentials of an Acceptable School of Physical Therapy, prepared by the Committee on Essentials, has been approved by the Council and is being submitted to the House of Delegates for consideration for adoption. This revision is the result of three years of study accompanied by numerous conferences and discussions with representatives of the Council on Physical Medicine and Rehabilitation (now the Council on Rehabilitation) of the American Medical Association and the American Physical Therapy Association. Because, in the opinion of all groups concerned, the existing Essentials, last revised in 1949, are outmoded, a current revision has been considered increasingly indicated. At no time has it been possible to obtain unanimous accord on all aspects of these Essentials. However, it is the considered opinion of the Council that this revision represents a helpful guide for the continuing development of educational programs in this field, subject to further study and modification as the need arises, and should be effective, given the mutual support of the medical profession and the physical therapists.

Appendix E: Essentials of an Accredited School for X-ray Technology.—Approved by the Council on June 6, 1955, this revision was prepared in collaboration with several agencies in this field and has been approved by the Chancellors of the American College of Radiology. The basic curriculum has been approved by the American College of Radiology, the American Society of X-ray Technicians, and the American Registry of X-ray Technicians, as well as the Council.

Council Publications

The Council has been responsible for the preparation of material of major significance for several issues of The Journal, including the following subjects:

Postgraduate continuation courses for physicians (Jan. 1 through July 15, 1955)	Dec. 11, 1954
Postgraduate and graduate courses for physicians (Sept. 1, 1955 through Aug. 31, 1956)	July 23, 1955
Medical licensure statistics (1954)	May 28, 1955
Directory and annual report of approved internships and residencies	Sept. 24, 1955
Medical education in the United States and Canada	Oct. 8, 1955
Eight articles in the Report on Postgraduate Medical Education in the United States	Spring, 1955

In addition, the Council staff has prepared special articles and numerous editorials for The Journal. Beginning with the material on postgraduate and graduate courses for physicians, the Council will present a similar single comprehensive listing of such courses for the entire year rather than in semiannual listings such as were presented in the past.

The Council is responsible for the preparation of a large number of other publications, all of which have wide distribution and among which are the following publications:

Colleges of Arts and Sciences Approved by Regional Accrediting Agencies
Choice of a Medical School
Licensure of Foreign Medical Graduates
Foreign Medical Schools
Essentials of an Acceptable School of Medical Technology
Approved Schools of Medical Technology
Essentials of an Acceptable School of Occupational Therapy
Approved Schools of Occupational Therapy
Essentials of an Acceptable School of Physical Therapy
Approved Schools of Physical Therapy
Essentials of an Acceptable School of Medical Record Librarians
Approved Schools for Medical Record Librarians
Essentials of an Acceptable School for X-Ray Technicians
Approved Schools for X-Ray Technicians
Reciprocity and Endorsement Policies of Medical Licensing Boards
Essentials for Approved Examining Boards in Specialties
Essentials of an Acceptable Medical School
Report of the Advisory Committee on Internships
Essentials of an Approved Internship
Essentials of Approved Residencies and Fellowships
Hospital Medical Library Suggestions
A History of the Council on Medical Education and Hospitals of the American Medical Association
Residency Information Bulletin

In addition, there are numerous reprints on other Essentials and on various aspects of medical education in all of its phases, which are available for distribution on request or where inquiries can best be answered through furnishing such materials. The task of maintaining adequate revisions of these various publications is an important aspect of the work of the Council staff. The Council staff is also responsible for the weekly listing in The Journal of scheduled examinations and reciprocity meetings of state licensing boards, basic science boards, and examining boards in the medical specialties. When indicated, the Council prepares statements concerning its current actions for publication in The Journal.

Changes in Organization and Staff

During the past year, the physical facilities of the Council have undergone considerable modification and "face lifting" in the interest of improved operational efficiency. The extensive back files of the Council were carefully studied and evaluated with the subsequent elimination of a large amount of obsolete and currently unnecessary material. Through the elimination of such material and reorganization of the utilization of space it has been possible to reduce the total square footage occupied by Council activities by approximately 20% while at the same time affording more free working space for the staff than had previously been available. These readjustments have resulted in improved staff working conditions, better filing arrangements, more adequate lighting, and better over-all ventilation. It has also been possible to develop a better accommodation for the activities of the Field Staff when they are in residence; the space has been planned to serve as a sorely needed staff conference room when Field Staff personnel are on their survey assignments.

As usual, the past year has witnessed a number of changes in the staff of the Council. Dr. Douglas D. Vollan, who conducted the study on postgraduate medical education in the United States, resigned as Assistant Secretary on April 1, 1955. During the year Drs. William Southard, T. H. Nordlander, David Robinson, and William Eaton resigned from the Field Staff and were replaced by Drs. Harold J. Chapman, Donald L. Custis, and Homer B. Freese. Dr. Willard V. Thompson rejoined the Field Staff after his discharge from the service. Dr. John Hinman has been appointed as Assistant Director of the Division of Hospitals and Graduate Education. The recently created post of Assistant Secretary of the Council with a specific assignment in the field of postgraduate medical education will be filled as soon as possible.

Developments and Needs

The routine assignments of the Council on Medical Education and Hospitals, together with the numerous problems and studies referred to it constantly, tend to widen the scope of its activities and increase the responsibilities of its staff. The increasing importance of and interest in postgraduate medical education necessitate that augmented attention be given to this area in the future in the effort to assure its sound development and to maintain high standards comparable to those so long upheld by the American Medical Association in the fields of undergraduate and graduate medical education. Much time and thought have been given by the Council staff to the as yet unsolved area dealing with foreign medical graduates. Although some advances have been made, it is obvious that the pursuit of this problem will demand continued attention and effort for some time ahead.

During the past two years, in collaboration with the Association of American Medical Colleges, the Council has been endeavoring to eliminate the back-log of medical schools in the United States and Canada that had not been resurveyed for 15 years or longer. In the course of the next two years, along with other routine evaluations, conferences, consultations, and surveys, this back-log will be completely eliminated and a regular revisit of all schools at 7 to 10 year cycles established. The accumulated back-log has been the result of personnel shortages that were aggravated during World War II and the large number of other problems with which the Council was confronted from time to time. The load of responsibility carried by the Field Staff in evaluation of hospitals approved for internships and residencies, together with their activities in behalf of the Joint Commission on Accreditation of Hospitals currently indicates the advisability of augmentation of Field Staff personnel. The Council would like to be able to facilitate internship and residency approval and to have adequate field staff to undertake more rapidly reevaluation studies where difficulties have existed so as to minimize the irritations and misunderstandings that occasionally arise from lack of sufficient personnel to undertake immediately such trouble-shooting activities.

The Council desires to serve effectively in meeting its many responsibilities to the House of Delegates and to the medical profession in the best possible manner and will continue to make every effort to do so.

Appreciation

The Council on Medical Education and Hospitals wishes to express very sincere and deep appreciation to Dr. Harvey B. Stone, who retired from membership in June, 1955, after having rendered outstanding service over many years. Dr. Stone's deep concern in the field of medical education and in regard to the welfare of medicine was backed by a profound, sagacious knowledge and wisdom, which over the years has materially contributed to the efforts of the Council to serve the House of Delegates in the best interest of all phases of medical education.

The Council also wishes to express its sincere appreciation to Dr. Douglas D. Vollan for his contributions in the field of postgraduate medical education during his period as a staff member and to the members of the field staff who left the Council's service for the efforts and contributions made during employment with the Council.

Welcome is extended to Dr. Harlan English, who was recently elected to membership on the Council, and to Dr. James M. Faulkner in his reelection to Council membership.

The Council also desires to express its deep appreciation of the support, encouragement, and cooperation it has received from the officers, Board of Trustees, and members of the House of Delegates of the American Medical Association and the collaboration afforded by the various organizations and agencies with which it has worked during the year. This support, encouragement, and cooperation has made possible the Council's efforts to discharge its responsibilities in behalf of American medicine and in the public interest in the various phases of medical education and hospital affairs.

Respectfully submitted,

H. G. Weiskotten, Chairman.
W. Andrew Bunten.
Guy A. Caldwell.
John W. Cline.
Harlan English.
James M. Faulkner.
Victor Johnson.
Leland S. McKittrick.
Franklin D. Murphy.
Charles T. Stone.
Edward L. Turner, Secretary.

REPORT OF THE COUNCIL ON MEDICAL SERVICE

To the Members of the House of Delegates of the American Medical Association:

The last annual report of the Council on Medical Service commented briefly on the wide variety of subjects coming within its purview. A Medical Service Chart, submitted to the House of Delegates, listed over 60 projects, including studies, surveys, and services, on which the Council and its committees were working. During 1955 considerable progress has been made, with 20 projects completed and 4 cancelled or referred elsewhere. Of the 36 projects remaining, 19 are of a continuing nature. Four of these are concerned with liaison with other organizations; one is the Physicians Placement Service, a direct service to physicians; eight are concerned with the collection of data on such projects as the hospital construction act, temporary disability legislation, physician-hospital relations, and health insurance; and eight are regular publications of the Council. Five of the remaining 36 projects are studies now in progress, some of which have already been reported in The Journal, and 10 are studies or surveys in varying stages of planning but not yet underway. Two new studies have been added during the year, and the staff has assisted in several projects assigned to other Councils or Committees.

In its work the Council is assisted by seven standing committees, each assigned to an area of medical service and each reporting regularly on its activities. The following review is a summary of the work of these committees during the past year.

Committee on Geriatrics

This is a new committee authorized by the House of Delegates in June, 1955. Dr. H. B. Mulholland, Charlottesville, Va., has been selected as chairman, and Dr. Edward L. Bortz, Philadelphia, as vice-chairman. Three other persons have been approved by the Board of Trustees but as yet they have not accepted. Two additional members are to be added in December.

The Committee is expected to have an organizational meeting in November to outline the basic problems in geriatrics and methods for approaching these problems.

Committee on Medical and Related Facilities

It was voted at the November, 1954, meeting of the Council on Medical Service to change the name of the Committee on Extension of Hospitals and Other Facilities to Committee on Medical and Related Facilities. There have been two changes in personnel during the year. Dr. D. Henry Poer, Atlanta, Ga., was named to replace Dr. John Cline, San Francisco, and Dr. Robert L. Novy, Detroit, was appointed to replace Dr. Elmer Hess, Erie, Pa. Others on the Committee are Drs. Ralph A. Johnson, chairman, Detroit; E. Dwight Barnett, New York; Cleon A. Nafe, Indianapolis; Willard A. Wright, Williston, N. D.; and Walter E. Vest, Huntington, W. Va.

Physician-Hospital Relations

Since a special committee of the Board of Trustees of the American Medical Association and of the American Hospital Association is endeavoring to prepare a statement on this subject, the Council's Committee has confined its activity to the preparation of a pamphlet containing present American Medical Association policy on the subject. The pamphlet contains the 1951 and 1953 policy statements adopted by the House of Delegates and the 1954 reaffirmation of the policy. Since requests are frequently received for information on the policy, this pamphlet will be used until a new statement is completed by the special committee and adopted by the House.

Group Practice Study

This study is concerned with business organization and operation and is designed to develop practical information for the benefit of physicians desiring to start a group practice or for those already in group practice who wish to alter or improve their existing arrangements. Visits have been made to over 50 group practice units in 16 states, and on the basis of these visits a report has been prepared for use in replying to requests from physicians interested in this form of practice. In addition, several articles based on these findings will be submitted to The Journal for publication as a series. As additional visits are made, the information will be appended to the present reports. The Committee is preparing a card index on group practice units throughout the United States, something that has long been needed. This will probably be a continuing project with new groups listed as they are reported to the Committee.

Multiple Screening

The 1955 revised edition of the multiple screening booklet has been completed and is available for distribution. Unless a greater demand for evaluation of multiple screening surveys is evidenced, nothing further will be done in this field except to keep informed of developments.

Medical Facilities

On a number of occasions in the past this Committee has reported on its efforts to provide information to the many physicians requesting it regarding office arrangements, equipment, and construction. While the material collected into loan kits was never completely satisfactory, it did serve a useful purpose. The Committee is pleased to report that this matter is now well taken care of by the publication of a brochure and a book on the subject.

The brochure is an 84-page Planning Guide for Establishing Medical Practice Units, edited by the American Medical Association and published through a grant from the Sears-Roebuck Foundation. Approximately 5,000 copies were made available to the Council on Medical Service, 3,000 of which were mailed to medical societies, medical schools, and teaching hospitals, with the balance to be used as loan copies for individual physicians through state and local medical societies as well as the Council office.

The book refers to a publication of the Reinhold Publishing Corporation, entitled *Doctors' Offices and Clinics*, containing a series of pictures and descriptions of a large variety of physicians' office buildings and clinics. Between the two they will fill a much-needed gap in available data on office planning. Both should be of real interest and use to many physicians.

Hill-Burton Hospital Construction Act

According to the Public Health Service report for the fiscal year 1954, on which the Council's last survey on Hill-Burton hospital construction was based, 2,283 projects had been approved, of which 1,673 were completed and in operation. At the end of the fiscal year 1955 (June 30), 2,514 projects had been approved, of which 1,905 were in operation, 503 under construction, and 106 initially approved but not yet under construction. These figures show an increase for 1955 in the number of projects approved (231) and in the number of projects that were completed and in operation (232). The projects have added to the nation's facilities 118,814 hospital beds, 79 health centers combined with general hospitals, and 468 health centers not combined with hospitals. Estimated cost of all projects was $2,056,113,951, with the federal share set at $671,204,705, approximately one-third of the total. A detailed report on progress under this act has been submitted to The Journal for early publication.

In 1954 Congress amended a public health law, 926, generally referred to as the Hospital Construction Act, to provide funds for construction of nonprofit "diagnostic or treatment centers." Such centers are defined in the law:

> A facility providing community service for the diagnosis or diagnosis and treatment of ambulatory patients, which is operated in connection with a hospital, or in which patient care is under the professional supervision of persons licensed to practice medicine or surgery in the State, or, in the case of dental diagnosis or treatment, under the professional supervision of persons licensed to practice dentistry in the State. This includes outpatient departments and clinics of public or nonprofit hospitals. The applicant must be either (1) a State, political subdivision, or public agency, or (2) a corporation or an association which owns and operates a nonprofit hospital.

In its allowance for such centers the law provides:

> Diagnostic or treatment centers shall be planned in sufficient number to make at least the basic minimum services readily available to all persons in the State, provided that the total number of diagnostic or treatment centers in the State (counting those existing as well as those proposed) shall not exceed one per 10,000 State population. The basic minimum services are clinical laboratory and diagnostic X-ray. The count of existing diagnostic or treatment centers shall exclude:
>
> (a) Offices of private physicians and dentists, whether for individual or group practice;
>
> (b) Industrial clinics for employees only, first aid clinics, and similar facilities not furnishing a community service;
>
> (c) Any diagnostic or treatment center which the State agency determines to be unsuitable in accordance with the objective criteria contained in the State plan. A diagnostic or treatment center shall in any event be regarded as unsuitable if it constitutes a public hazard.

In October, 1955, the Committee met with representatives of the Public Health Service to discuss proposed revisions of the regulations to be used in implementing these and other amendments to the Hospital Construction Act. Following this conference the Committee submitted suggestions and recommendations to the Public Health Service for clarifying the regulations. One of the recommendations was that physicians' offices be "included" rather than "excluded" in any count of existing facilities in planning for diagnostic or treatment centers. Although the Federal Hospital Council did not accept this recommendation, it did add a paragraph to the regulations, which reads as follows:

> (a) In determining the need for additional diagnostic or treatment services in a community as a basis for distribution of diagnostic or treatment centers, consideration shall be given to any such services provided by private physicians and dentists.
>
> (b) Whenever practicable, diagnostic or treatment centers shall be coordinated with existing or proposed hospitals.

It is evident that this amendment to a law originally created to obtain a better distribution of hospital beds directly involves physicians' services and is of vital concern to the medical profession. Since each state must revise its laws to provide for a resurvey of the state and the preparation of new priorities, in regard to not only "diagnostic or treatment centers" but also other special facilities such as chronic disease hospitals and rehabilitation centers, the medical profession may be able to exert some influence as to the direction in which this new program progresses. In view of this possibility and because of the uncertainty as to just what this new development means in relation to private practice, the Committee recommends: (1) that each state medical association be urged to follow closely the developments in its state and report to the American Medical Association these developments, any changes in legislation, and any official actions taken by the medical association; and (2) that the American Medical Association seek to have one or more physicians in private practice placed on the Federal Hospital Council, which is responsible for developing rules and regulations within the objectives of the law.

The Committee will itself follow developments throughout the country, particularly those regarding "diagnostic or treatment centers" and report on them to the medical profession.

Physicians Placement Service

Probably the most satisfactory Council project from the point of view of results to the Association and to many of its physician members is the placement service. During the year 3,716 physicians, communities, and companies have been served, either directly or indirectly, and indirectly in this instance is even more important than directly, since it relates to additional services performed by the state medical association placement programs on cases referred to them.

As mentioned in previous Committee reports, every constituent association now has some type of program to assist physicians seeking a location and communities, companies, and others seeking a physician or has requested the American Medical Association to provide this service for them. This nationwide network of programs has made possible a more effective service to physicians and to those seeking physicians. Letters from physicians who have requested location information and have decided on a place to practice provide some indication of the kind of service rendered by the state medical associations. It is a pleasant duty to report that an increasing number of such letters contain words of commendation for the services of the state placement programs. Furthermore, a close correlation exists between the states that the physicians commend for service and the states that cooperate with the American Medical Association placement service in supplying copies of current opportunities for practice, in using available material, and in checking sheets to be returned.

State Activity.—During the past year 34 states have cooperated regularly with the Association in such placement service activities as the preparation of community listings, checking map lists of communities open and filled, distribution of hospital posters, use of booklets, and reporting on activities that show where doctors have located and how towns have secured physicians.

Approximately half of the 39 states now supplying the American Medical Association with basic lists of communities seeking physicians forward these at regular intervals without being requested to do so. In 1952 only 19 states were supplying such lists. These lists are revised at varying intervals, some as often as changes occur. This is possible even with the frequent changes of active services; the loose leaf, individual listing used by Illinois and Texas lends itself very well to frequent revision. New York brings the listing up to date every two weeks; Virginia and Ohio forward a revised copy each month to all doctors on the mailing list; Oregon and New Jersey make their listings current each quarter. Other states vary the revision interval as the need occurs. There appears to be a direct ratio between this interval and the type of service rendered to the community.

Listings for only two states, Delaware and Nevada, are maintained entirely by the American Medical Association at the request of the states, because a full-time executive secretary is not employed. Two states have indicated that no vacancies exist in their communities. Five states indicate they have a placement service but do not make their listings available to the American Medical Association.

Current Activities.—The Physicians Placement Service serves in a dual capacity—providing physicians with a ready access to lists of openings in all parts of the United States and providing those seeking physicians with lists of available physicians by specialty. The state placement service, in turn, assists all concerned by providing local information so necessary in determining a place in which to locate or a physician to fit an available opening.

A parallel has been drawn in this report between activities for the years July, 1952, to July, 1953, and July, 1954, to July, 1955, since it was in 1952 that the Committee on Medical and Related Facilities decided to use a limited amount of planned publicity for the placement service activities, such as Journal articles, booklets, posters, conferences, and field work by medical students.

Physician Requests.—Physician inquiries addressed to the Council for location information covering the period July, 1954, to July, 1955, totaled 1,332 as compared with 622 such inquiries received from July, 1952, to July, 1953. A breakdown of these two figures follows:

General practitioner inquiries, 1952-1953	401
Specialist inquiries, 1952-1953	221
General practitioner inquiries, 1954-1955	409
Specialist inquiries, 1954-1955	923

Individual physicians have requested information about more states during the past year. Approximately 3,900 copies of their questionnaires were referred to the state medical associations for assistance from July, 1954, to July, 1955, as compared to 1,500 sent out the previous year. In the five year period from July, 1948, when the present system of files was developed, to July, 1953, there were 838 physician files closed. In less than half the time, July, 1953, to July, 1955, over 1,836 physicians who asked for assistance in finding a location for practice decided on a location, went into the armed services, or decided not to change location.

Community Requests.—The total number of general practice opportunities as of July 1, 1955, was 1,490, compared with 1,531 on July 1, 1952. The number of general practice openings in 1955 was smaller even though twice as many associate openings were listed in 1954-1955; there were 39 states compiling their own lists, as compared with 19 in 1952, thereby providing a closer and more direct service for the communities of more states; and articles and advertisements of commercial firms in popular magazines have carried the information that assistance is available in securing needed medical care.

A list of all communities seeking a general practitioner (this includes general practitioners seeking an associate) between 1952 and 1955 was sent to each state medical association in the spring of 1955 to learn whether the community has secured a physician, is still seeking a physician, or has been closed. A listing may be closed from a list because the former physician has returned from the armed services, a new physician in a nearby community is covering the area, or the community has lost interest. The returned lists were used to bring up to date the map that shows the current status of community openings.

The map covering the period May, 1952, to July, 1955, shows that 3,609 openings have been listed for general practitioners. Of these, 965 have been filled, 1,154 closed, and 1,490 remain open as of July 1, 1955. Of the 965 communities that have been successful in securing a general practitioner, 777 have less than 5,000 population.

Specialists openings for physicians totaled 242 in July, 1952, and 247 in July, 1955. Listings of opportunities for practice from the state medical associations continue to be predominantly from the communities seeking a general practitioner, but during the past year there has been some increase in requests on the part of those seeking a specialist. The Physicians Placement Service has continued to refer the questionnaires of the specialists to the states in which interest is indicated and at the same time any known openings are forwarded to the physician. In view of the increasing number of specialists seeking openings (221 in 1952-1953 contrasted to 923 in 1954-1955), more activity will be necessary in the specialty fields to continue to be of service to the Association membership. Some of the specialties are still very much in demand, in others there seems to be need for better distribution, and a few specialties seem to have a surplus.

The Council files do not contain all specialty openings available or all physicians seeking a location, but they would appear to offer a good cross section for both. The following information is taken from these files. In fields such as dermatology, radiology, anesthesiology, and orthopedics, the percentage of the total number of requests from those seeking a location corresponds closely with the percentage of the total number of openings listed. On the other hand, there is a wide variation between these percentages for such specialties as surgery, internal medicine, obstetrics and gynecology, psychiatry, ophthalmology, and otolaryngology. For the latter three, percentage of openings far outweighs the percentage of specialists seeking a location. The greatest imbalance is between the EENT specialists and surgeons seeking locations and the openings available. Steps are being taken to seek possible locations and openings for the many newly trained specialists ready to start in practice. With the cooperation of the various specialty societies and the state associations, it is hoped that this portion of the service can be improved and made more effective.

Exhibits.—Results from the Placement Service exhibit at the Student AMA meeting cannot be measured immediately, but it can be said that the students, their families, and counselors showed a definite interest.

Questionnaires secured from the Council exhibit in Atlantic City by physicians seeking a location, as well as by those seeking the services of physicians (college, research, industrial, associate), are still being returned. In addition to those who were looking specifically for assistance in locating, it was interesting to observe others stop and ask questions about the map, which indicates general practitioners openings. Letters received in recent weeks from a number of physicians still in training and some physicians in military service indicate that those who attended the meeting in Atlantic City shared their information and material with those who did not go. The Sears-Roebuck Foundation book, "A Planning Guide for Establishing Medical Practice Units," attracted the attention of many. Requests for loan copies were received not only from practicing physicians but also from representatives of a number of organizations such as the British Medical Association and the United States Public Health Service.

Pamphlets.—The medical students who worked with the Placement Service in the summers of 1953 and 1954 made field trips for the specific purpose of studying facilities provided by community efforts. Some of the representative accounts were used to prepare the booklet, "Community Efforts Provide Medical Facilities." Comments and requests from state associations indicate that this booklet answers a specific need for many communities.

"Physicians Placement Services—1955," which describes briefly the services offered by the states and by the Association, has been of assistance in answering letters of inquiry from physicians concerning services available through the state associations and the American Medical Association. This was the booklet requested at the Student AMA meeting for the graduating classes of several medical schools. A number of interns and residents after receiving a copy of this booklet have requested enough for distribution among others in training at their hospital.

The Medical Association of Georgia has recently compiled a booklet, "So Your Town Wants a Doctor," to be sent to the communities seeking a general practitioner.

Hospital Posters.—In April, 1955, a total of 1,333 posters for hospital bulletin boards, calling attention to the physicians placement services of the state medical associations and the American Medical Association, were sent to the 32 state medical associations requesting copies.

Related Articles.—The lead article of the March, 1955, issue of *Mead Digest for Residents and Interns* discusses "How to Find a Location." As a result of listing the address of the Council on Medical Service as a contact for additional placement service information, physician inquiries showed a sharp increase for several months. A large number of community requests for assistance in securing a doctor have been referred to the Council by Parke, Davis and Company. The letters came as a result of a full page advertisement appearing in a number of magazines; the advertisement posed the question, "Does Your Community Need a Doctor?" Another article, "How Some Towns Get Doctors," which appeared in the August, 1955, issue of *Town Journal*, with the Council's address listed as a source for additional information, has brought an increase in community requests for assistance.

Community Rating Schedule.—If a copy of the application of the Community Rating Schedule for each community listed by all state associations as needing a general practitioner were compiled into a composite unit, the national picture separating needs from wants would be presented. Towns that cannot support a physician or do not actually need additional medical care would be put down in black and white and the list of true general practice openings would be more accurate.

Texas Doctor Distribution Survey.—The Texas Medical Association, under the guidance of its Committee on Doctor Distribution, is the first state medical association to make a systematic, statewide survey for the purpose of answering the question, "Is there a physician shortage in our state?"

The attractive cover on the "Doctor Distribution Surveys in Texas" introduces the following items pertaining to the survey: procedure; related factors; physicians placement service; a detailed account of statistics; and the survey in the first area in which the Community Rating Schedule has been applied. Included in the booklet are copies of the different letters sent to the president and secretary of the county medical society, to all physicians in the area, and to key civic leaders throughout the district whose community population is 600 or more; check sheet to the county secretary for answer to the question, "In your opinion, is there an adequate number of doctors in these counties to care for the medical needs within the County?"; Texas Medical Association booklet, "Does Your Community Need a Doctor?"; community rating schedule; and amended form, found practical by the Committee, of the "Desirability Priority from the Standpoint of the Physician" part of the Rating Schedule.

This survey has involved not only paper work but also committee visits to the communities. As a result of this study, the Texas Medical Association will have found a verified answer to their question, and will have given added impetus to good public relations between the medical profession and the general public. Texas has supplied the Council will copies of the application of the Schedule made in that state. A note from the Indiana State Medical Association indicates that state is now in the process of applying the Schedule.

Committee on Indigent Care

The personnel of the Committee on Indigent Care has remained the same this year and consists of Drs. H. B. Mulholland, chairman, Charlottesville, Va.; A. J. Bowles, Seattle; E. P. Coleman, Canton, Ill.; John L. Lattimore, Topeka, Kan.; E. A. Ockuly, Toledo, Ohio; Dean W. Roberts, Baltimore; and I. Jay Brightman, Albany, N. Y.; and Mr. R. M. Hilliard, consultant, Chicago.

JOINT CONFERENCE ON MEDICAL CARE FOR THE INDIGENT

The Council on Medical Service authorized the chairman of its Committee on Indigent Care to invite representatives of the American Hospital Association, American Public Health Association, American Public Welfare Association, and the American Dental Association to participate in a joint conference for the purpose of exchanging ideas and information and correlating activities that will contribute to improved medical care for the indigent and medically indigent. It was requested that each of the associations appoint three representatives, of which one might be a staff person, in order to provide for continuity of committee membership. The meetings are held at the call of the chairman or at the request of any of the participating organizations. The expenses of representatives are the responsibility of the respective organizations. Other expenses, such as those for clerical services or meeting space, are assumed by the Council on Medical Service. Such joint effort will provide each organization with a better understanding of the problems and programs of the other participating organizations, will serve as a source of information on trends in the field of tax-supported medical care for needy persons, and will stimulate studies and the development of guides, that will assist in improving programs at the state and local levels.

A staff meeting of the conference group was held in September, 1954, to discuss suggestions for working relationships within the joint conference group. Another staff meeting was held in November, 1954, in New York, to review a preliminary statement of principles and to discuss the possibility of a national conference on medical problems of the low income and non-income groups.

A meeting of the appointed representatives to the Joint Conference on Medical Care for the Indigent and staff personnel was held Jan. 29, 1955, in New York, to review the suggested draft of the statement of principles. The consensus was that, if such a statement of basic principles could be agreed upon, those principles could be channeled to the state and local groups, where they might serve as guides and provide a basis for joint endeavor. To date, the statement has been approved by the American Public Welfare Association, the American Public Health Association, and by the board of trustees of the American Dental Association; it has been approved with certain interpretations by the American Hospital Association; and has been submitted by the Council on Medical Service to the American Medical Association Board of Trustees for its information and suggestions. The Board of Trustees, however, has returned the statement "for revision," a task which will be undertaken this fall.

One of the topics of discussion at the joint conference was the national conference mentioned previously. It was agreed that the time was not propitious for such a conference and that, as a preliminary step, efforts should be made to develop definitions, statistics on the scope of the problem, and adequate cost data. However, the members did agree that regional conferences could be most helpful and might well be arranged.

Field Work and Publications

Since the Committee's last report, five additional field studies have been made and published in The Journal. The five areas and The Journal references are as follows: Allen County, Indiana, Oct. 23, 1954; Maryland, Feb. 5, 1955; Illinois, April 9, 1955; Washington State, May 28, 1955; and North Carolina, July 16, 1955.

The Council staff assisted the Kentucky State Medical Association in a study of medical care available to the indigent in Kentucky and also assisted the Florida Medical Association in developing a similar project. Both studies were directed toward obtaining better state financing through new legislation. They have been published and should prove interesting and valuable to other medical societies seeking to develop or improve their indigent care programs. This makes 20 studies completed by the Committee and fairly well exhausts the possible areas in which field work can be productive. It has resulted in the accumulation and publication (18 Journal articles and one booklet) of much interesting and worthwhile information on existing indigent care plans. These, in turn, have stimulated interest on the part of the medical societies in improving their local services to the indigent.

A booklet containing 18 studies, as well as the "Guides for Evaluating Indigent Medical Care Plans," developed by the Committee and published in The Journal, Nov. 7, 1953, p. 950, will be published this fall. This will provide a reasonable cross section of the types of plans in operation throughout the nation. Included will be state plans for Rhode Island, New York, Pennsylvania, Maryland, Illinois, Washington, and North Carolina, and local plans for Erie County (Buffalo), New York; Madison, Wis.; Newark, N. J.; Shawnee County (Topeka), Kansas; Lake County (Gary), Indiana; Laramie County (Cheyenne), Wyoming; Cascade County (Great Falls), Montana; Polk County, Iowa; Richmond, Va.; Vanderburgh County (Evansville), Indiana; and Allen County (Fort Wayne), Indiana.

With these reports and studies as background the Committee will undertake to review specific aspects of the various indigent care programs. For example, because of the present controversy over the permanent and total disability amendments to Title II of the Social Security Act, it seems timely to review the experiences of a number of areas with the present permanent and total disability provisions of Title I of this same act. Some of the questions to be answered are: What problems are arising in the determination of disability? To what extent is rehabilitation being sought and with what success? The answers of these and other questions should be useful to the House of Delegates and Board of Trustees in carrying out the program announced by the Board in September.

Committee on Maternal and Child Care

The members of this Committee are Drs. W. L. Crawford, chairman, Rockford, Ill.; R. B. Chrisman Jr., Miami, Fla.; Philip S. Barba, Philadelphia; Harold S. Morgan, Lincoln, Neb.; J. L. Reichert, Chicago; Garland D. Murphy, El Dorado, Ark.; Howard A. Nelson, Greenwood, Miss.; and Donald A. Dukelow, consultant, Chicago. The only change is that Dr. Chrisman will serve as the council representative in lieu of Dr. Mulholland, who serves as chairman of the Indigent Care Committee.

The report last year outlined the Committee's projected program to be of assistance to constituent and component medical societies, official and voluntary health agencies, and practicing physicians in their efforts to improve maternal and child health. Progress is being made on this program. The objective of the Committee's current studies of maternal and child care programs in selected states and cities, as previously reported, is to provide data and information for developing standards or guides for the operation of such programs. Also, through analysis and evaluation of factors present in states, that have relatively good infant and maternal health records, the Committee will be able to make specific recommendations to other states and communities seeking consultation and advice on various problems.

Through field visits and experimentation with various working schedules, the Committee has developed a method for obtaining detailed information on all phases of maternal and child care. This information is condensed into suitable reports for The Journal under the general title, "Studies of Maternal and Child Care in the United States." Part 1 of the series, concerning the state of Connecticut and city of Hartford, appeared in the Nov. 6, 1954, issue. Part 2, on Indiana and Indianapolis, appeared in the March 5, 1955, Journal, and Part 3A, concerned with the statewide aspects of maternal and child care in Nebraska, was in the June 25, 1955, issue. The reports on Lincoln and Omaha and the state of Michigan and Grand Rapids have been submitted to The Journal for early publication. Four or five additional detailed studies are anticipated. The concluding article to this series will be one of analysis and evaluation of the factors that combine to make a successful, well-functioning, total maternal and child care program. Geographical, cultural, racial, and economic circumstances will not be forgotten in this evaluation.

Response to the Committee's published material has been gratifying. A great many requests have been received for both current reprints and reprints of subsequent articles. These requests are received primarily from medical society committee chairmen and officials of state and city health departments concerned with maternal and child care. Quantities sufficient for distribution to their respective maternal and child health committee members and health department divisional personnel are generally desired.

During the field work it became evident that among the key facets to be explored further were the activities of maternal mortality study committees. In some areas these committees not only have contributed to a reduction in maternal mortality but also have developed an important educational method that might well be adopted by other areas with relatively high maternal mortality rates. In exploring the work of maternal mortality study committees, this Committee has sought the cooperation of other national and regional organizations concerned with this specific problem.

The American Committee on Maternal Welfare and its Subcommittee for State and Local Mortality and Morbidity Committees has for the past two or three years been engaged in a survey of state and county maternal mortality committees and has endeavered to stimulate the establishment of new study committees. In 1954 the Central Association of Obstetricians and Gynecologists established a Special Committee to Study Maternal Deaths. Because these two organizations were actively working on the specific problem of maternal mortality, their representatives were asked to participate in a Joint Conference on Maternal Welfare Committees sponsored by this Committee on March 19, 1955. Also in attendance at this conference were 10 representatives of surrounding state and city medical society maternal health committees. This joint meeting resulted in a clearer definition of the problems involved and a better understanding of each organization's activities relative to solving some of these problems. As a result of this meeting and subsequent informal conferences with individuals of these organizations and because of the widespread interest in maternal mortality studies, it was deemed advisable to review in detail the scope, functions, operations, and results of those studies now underway in various cities and states.

Information available to date indicates that 46 state medical societies have committees on maternal welfare or maternal and child health, but only 8 or 9 of these have a good maternal mortality study program functioning on a statewide basis. A few states are beginning to develop programs to study all maternal deaths while others have discontinued the program because of complications. Thirty-six counties or large cities have similar committees of the local medical society, some of which are known to have well-functioning maternal mortality study programs.

This particular phase of the Committee's work began this summer with field visits to Columbus, Ohio, for a review of the Franklin County Maternal Mortality Study Program, to Minneapolis and St. Paul to review the Minnesota Maternal Mortality Study Program, and to Philadelphia for a review of the Philadelphia Maternal Mortality Study Program (in addition to their total maternal and child health program). Several additional city and statewide programs are to be included in this project. With the information collected in these field visits, the Committee will meet again with the two above-named organizations, and perhaps others, to prepare concrete recommendations on the organization and operation of maternal mortality studies and to devise ways and means of disseminating such recommendations to medical societies, health departments, and individual physicians.

A new project undertaken by the Committee is a review of the problems involved in perinatal and fetal deaths. The activities of the Hennepin County Minnesota Neonatal Study Committee and the Philadelphia neonatal mortality and fetal death study committees have been reviewed as the first step in this project.

Committee on Medical Care for Industrial Workers

The membership of the Joint Committee on Medical Care for Industrial Workers of the Council on Industrial Health and Council on Medical Service now consists of Drs. W. A. Sawyer, chairman, Rochester, N. Y.; Clark Bailey, Harlan, Ky.; Warren F. Draper, Washington, D. C.; Frank J. Holroyd, Princeton, W. Va.; Edwin P. Jordan, Charlottesville, Va.; Melvin N. Newquist, New York; Arthur C. Scott Jr., Temple, Texas; and Frederick W. Slobe, Chicago. Committee consultants are Drs. Donald A. Dukelow and John Hinman, both of the American Medical Association staff in Chicago. Dr. Leo Price served as a member of the Committee for part of the year until his appointment to the Commission on Medical Care Plans.

A Survey of Management and Union Health Centers

A revision of the Committee's booklet containing descriptions of 17 union health centers was published in December, 1954. The revised booklet contains information on the five additional health centers that had been visited by the staff subsequent to the issuance of the first pamphlet in 1953.

The Committee is constantly learning about new union health centers and is maintaining a register of these facilities for continuing contact and survey. There are now approximately 42 such centers in operation, with two or three more in the process of formation. Several more centers have been visited and will be written up in future editions of the booklet. No attempt was made by the Committee to evaluate these centers, but the information was extremely helpful in the preparation of "Guiding Principles for Evaluating Management and Union Health Centers," which are discussed elsewhere in this report.

A booklet similar to the one containing information on union health centers is being prepared for management sponsored health facilities. Thus far nine studies have been prepared, and others are being made. The information obtained in both of these projects has been made available to the Commission on Medical Care Plans and should prove helpful in its study of the organization and operation of different types of plans.

Guiding Principles for Evaluating Management and Union Health Centers

The presentation of a set of guiding principles to the House of Delegates in June, 1955, which were published in The Journal of July 9, culminated many months of diligent work on the part of the Committee to arrive at a decision concerning the relationship between union and management-sponsored health centers, private physicians, and medical societies. The guides were preceded by meetings the Committee held in Louisville, Ky., Washington, D. C., Buffalo, and New York with representatives of medical societies and the various centers and with other consultants in order to prepare a document that would serve the best interests of the patient, the community, and the medical profession. The awakening interest in management health programs and the increasing evidence of union health center activity in all parts of the country demonstrates the importance of some such set of guide lines. The House of Delegates will have an opportunity to review these principles with their local medical societies prior to acting on them at the 1955 Clinical Meeting. Although the statement may not meet with the approval of all concerned with this particular medical activity, it is nevertheless believed to represent a major step forward in formulating criteria that have been urgently requested by physicians and laymen in the field. The Committee wishes to acknowledge the invaluable assistance of Dr. Leo Price, medical director of the I. L. G. W. U. Health Center and member of the American Medical Association Commission on Medical Care Plans, and Dr. William Hall Lewis Jr., a member of the Committee on Medical Economics of the Medical Society of the County of New York and of the Editorial Board of *New York Medicine*, for their untiring efforts in assisting the Committee in the original formulation and subsequent revisions of the principles.

United Mine Workers of America

The third conference on medical care in the bituminous coal mine area, which was held in Huntington, W. Va., Oct. 23-24, 1954, represented part of the continuing work of the Committee in improving medical care in the coal mine areas. Proceedings of the conference were published in December. Developments within recent months have more than justified the Committee's emphasis on the importance of the role of the state liaison committees in anticipating and resolving local problems with the area medical administrators. At the time of the conference, areas of agreement and disagreement were evident, but, as was reported in the summary, "The Conference was in general agreement that progress in solving problems has been achieved but that more work is necessary." The air of general satisfaction that had permeated the conference was shattered, however, with the issuance of a directive from area medical administrators in the spring of this year that severely restricted the practice of the general practitioner and imposed specialist consultation requirements that did not previously exist. Medical societies in the coal mining area reacted immediately and unfavorably to the new directive and passed resolutions condemning it. Several of these were presented to the House of Delegates at its June meeting. The result of this development is contained in the report of the Reference Committee on Insurance and Medical Service, which recommended the adoption of the following resolution to replace the four submitted:

> *Resolved*, That the House of Delegates of the American Medical Association expresses its disapproval of that portion of the directive issued by the executive medical officer of the U. M. W. A. Welfare and Retirement Fund which requires consultation by a specialist before admission to a hospital of all beneficiaries of this program who are treated by physicians other than those approved by the U. M. W. A. Welfare and Retirement Fund as specialists; and be it further
>
> *Resolved*, That all other controversial matters arising between the U. M. W. A. Welfare and Retirement Fund and the participating physicians which cannot be reconciled at the local or state level shall be promptly referred to the Committee on Medical Care for Industrial Workers of the Council on Medical Service and the Council on Industrial Health of the American Medical Association.

The resolution was adopted by the House of Delegates.

Recognizing the gravity of the situation, the Committee has placed the work of the liaison committees as the major item on the agenda for a fourth conference to be held in Charleston, W. Va., in October. Subsequent to the arrangements for the Conference, Dr. Draper declared in a speech before the Medical Society of the State of Pennsylvania on Sept. 21, ". . . Many physicians felt, however, that this was a reflection on their professional competence and integrity and, on disapproval of the House of Delegates of the American Medical Association, consultation on all cases prior to hospital admission is no longer required." A critical evaluation of the operation of these committees and the manner in which problems are handled will be made. The conference will be preceded by a two day field trip to the Beckley and Bluefield mining areas for an inspection of mines and medical facilities and for meetings with the respective county medical societies. An invitation has been extended to state medical associations other than the five usually identified with the conference (Kentucky, Pennsylvania, Tennessee, Virginia, West Virginia) to participate in the discussions and to form liaison committees.*

Absence from Work Due to Nonoccupational Illness and Injury

Absence from the job due to nonoccupational disability represents a most challenging problem not only to the industrial physician but also to the entire medical profession. Loss of production, loss of income, and loss of profits all assume gigantic proportions to both employer and employee. The medical and other professions continue to be confronted with questions for which there are as yet no positive answers. Research in this area is haphazard; data are usually not comparable, and even uniform absenteeism control reporting procedures are lacking. The problem is, therefore, one of deep concern to the medical profession as well as to management and each community-at-large.

Recognizing the voids that exist in our information in this area, the Committee has engaged in a threefold attack on the problem. The first project, the compilation and preparation of a bibliography, has already been completed and published. "A Selected Bibliography on Nonoccupational Sickness Absenteeism Among Industrial Workers" has received enthusiastic response from medical directors, personnel people, and business and trade associations executives. The bibliography is the most complete one compiled in the past 10 years and will be reissued with additions periodically.

The second project authorized by the Committee is a study of in-plant medical programs and their effect on nonoccupational absenteeism. The purpose of these case studies, 10 of which have been made so far, is to secure through personal interview all pertinent information relating to medical programs and how they deal with the problem. The case studies will eventually be issued in pamphlet form to provide examples of methods of handling absenteeism, the kinds of programs involved, the statistics compiled, the costs and benefits of such programs, and the relationship of company medical personnel to the general practitioner.

The third project, which is in its formative and organizational stage, consists of devoting a one day session in the forthcoming Congress on Industrial Health in January, 1956, to this subject. A planning session for the Congress meeting was held in Detroit in June and was attended by over 25 leading figures in the industrial medical field and representatives of large trade associations. There was unanimous agreement on the need and timeliness of such a meeting, and many suggestions were made as to the format of the program. The program is now being developed, speakers will be secured, and further meetings will be held with them prior to the meeting. The Public Health Service is cooperating by assisting the Committee in the preparation of a special pamphlet dealing with certain aspects of the problem. This pamphlet will be distributed to the registrants of the meeting and will serve as source material for the discussions.

Temporary Disability Programs

In 1952 the Council published a report entitled "Temporary Cash Sickness Benefits and Related Legislation," detailing the provisions, history, and current trends of this type of legislation. Several progress reports have been made summarizing more recent developments, but no detailed study has been published since that time, as the situation remains approximately the same. No new cash sickness programs have been adopted; only the four states then listed (California, New Jersey, New York, Rhode Island) have such plans in operation as of 1955. The Council, however, continues to follow developments in these programs, as well as legislative proposals in the field.

Although there has been little activity in Congress in the temporary disability field, the 1955 Social Security Amendments may well stimulate new interest in this type of legislation. These amendments, passed by the House and to be considered in the Senate in 1956, include, as part of the Old Age and Survivors Insurance program (OASI), a cash benefit program for beneficiaries 50 years of age or over who are totally and permanently disabled. If this "permanent disability" program should become law, some authorities in the field believe it would almost certainly lead to demands for "temporary disability" programs. The Board of Trustees is studying developments in both areas.

Of the programs in operation, the Rhode Island plan, adopted in 1942, was the first enacted in the United States; it provides benefits through a state fund financed by a tax on employees. The California plan, established in 1946, and the New Jersey plan, established in 1948, allow the employer to insure employees either through a state fund, through a private insurance company policy, or through self-insurance. The New York plan, established in 1949, does not have a state fund, per se: the employer may choose between private insurance, self-insurance, or insurance with a state insurance company set up a competitive basis with commercial firms. In these three states, the employer pays the cost if it goes over a set base tax on employees (1% in California and ½% in New Jersey and New York).

The state of Washington adopted a cash sickness program in 1949, but the voters of the state in a subsequent referendum rejected it. No other states have adopted such plans since 1949. However, by 1954, six states (Idaho, Maryland, Montana, Nevada, Tennessee, Vermont) had enacted what is known as the "Maryland amendment" to their unemployment compensation acts. Ordinarily, compensation is paid only while the worker is unemployed and actively seeking employment, but this amendment allows workers to collect compensation if they become ill or injured after filing a valid claim. This is, strictly speaking, not a "cash sickness" program, since the basis of payment is primarily the unemployment claim, rather than the illness; however, it may be a step in the direction of such a program.

Current legislation shows no change in the trends noted in the Council's 1952 report. No new plans have been enacted, but bills have been introduced in a number of states every year, and the states with plans continue to increase benefits or liberalize requirements. Delaware enacted the "Maryland amendment," and South Carolina appointed a study commission which is to report in 1956. In addition, the U. S. Senate, in its closing session, introduced a cash sickness bill for the District of Columbia, hearings on which will probably begin in January, 1956.

New York adopted benefit increases in its program in 1954, and California, New Jersey, and Rhode Island increased benefits in 1955. California also liberalized some of the administrative requirements, both for employers and employees.

In 1954, with 14 state legislatures in session, 11 cash sickness bills were introduced in five states; in 1955, with 44 legislatures in session, 18 such bills were introduced in nine states. In 1955, bills for a "Maryland amendment" were introduced in four states, and bills appointing study commissions on state cash sickness plans were introduced in three states.

Other items of interest, although hardly indications of any trend, are the request of Connecticut's governor, in his inaugural address, for an "Off-the-job Illness and Injury Law" and of New York's governor for liberalization of the existing law, which he termed "unfair and inadequate." A North Dakota proposal for a commission to study a state health and accident insurance system is the first such proposal in the state. Hawaii considered not only a cash sickness bill but also a bill providing hospital-medical-surgical care for all residents. None of these proposals was enacted in 1955, but they indicate that the issue is still alive.

Resume of 1954-1955 cash sickness benefit legislation:

Study Commissions: 1954: Minnesota commission, appointed 1953, reported against state cash sickness benefit plan. 1955: Commissions proposed in Michigan, North Dakota, South Carolina; adopted in South Carolina, to report in 1956.

Cash Sickness Plans: 1954: Bills introduced in Arizona, Louisiana, Maryland, Massachusetts (7), Michigan; none enacted. 1955: Bills introduced in Arizona, Connecticut (5), Illinois, Massachusetts (3), Michigan (2), Minnesota (3), Nevada, Ohio, Hawaii. None enacted.

"*Maryland Amendment*": 1955: Bills introduced in Delaware, Massachusetts, Pennsylvania, West Virginia; enacted in Delaware. Still pending: Massachusetts.

---

* Out of respect for Dr. Carl M. Peterson, Secretary of the Council on Industrial Health, who died as a result of injuries received in a plane crash while on his way to a medical meeting in North Carolina, the conference has been postponed for a month.

Committee on Federal Medical Services

The membership of this committee has had one change during the year. Dr. J. Lafe Ludwig, Los Angeles, was selected to replace Dr. C. B. Puestow of Chicago. Other members are Drs. Louis M. Orr, chairman, Orlando, Fla.; J. D. McCarthy, Omaha; Richard L. Meiling, Columbus, Ohio; Harvey B. Stone, Baltimore; Vincent W. Archer, Charlottesville, Va.; and Russell B. Roth, Erie, Pa. Consultants to the committee are Dr. Frank E. Wilson, Washington, D. C., and Dr. Edward H. Leveroos and Mr. C. Joseph Stetler, Chicago, all of whom are American Medical Association staff members. This committee finished 1954 and started 1955 with an active program designed to inform the profession concerning the American Medical Association policy as it relates to the Veterans Administration medical program.

Conference with State Committees

As part of this program, the committee sponsored a Conference of State Committees on Veterans' Affairs, held in Chicago, Feb. 19, 1955. The purpose of the conference was to inform state society representatives of developments at the national level and to obtain their advice and suggestions regarding Association action during 1955. Problems discussed were additional material that the committee should provide to the states, presumption of service-connection by legislation, the Home Town Care program, liaison between the committee and state societies, relationship to the public in the educational program, and liaison between state societies and veterans' groups. This conference was reported to all state societies in the April, 1955, Newsletter.

Federal Medical Services Newsletter

A second portion of the committee's program was the Newsletter. Four issues of the Newsletter—September and November, 1954, and January and April, 1955— have been published. Although originally devoted primarily to the Veterans Administration program, the later issues included material on all subjects within the scope of the committee. Brief reports have been made on the Hoover Commission recommendations, Indian medical services, the doctor draft, and the total picture of Federal medical care, as well as recent developments in the Veterans Administration picture. Studies of the Panama Canal Zone's system of state medical care and the Public Health Service's program for care of foreign seamen are among those projected for future issues.

The Newsletter is mailed to all members of state committees concerned with Federal medical services, to state executive secretaries, editors of state journals, and members of the House of Delegates. The committee has received many comments regarding the effectiveness of the Newsletter, and excerpts are frequently reprinted in state journals and county bulletins.

Liaison with American Legion

The major development, one with which the committee itself is not directly connected but that has served to alter its activities, is the renewal of official liaison with the American Legion. This came about following the talk of Commander Seaborn P. Collins before the House of Delegates in Miami, in which he stated, "For my part, I am prepared to appoint a special committee of American Legion representatives who know the background and facts surrounding veterans' hospitalization to meet with a similar committee of your choosing and work toward a better mutual understanding of the problem. I earnestly hope that you will see fit to participate in such an undertaking. If our two groups approach the subject of medical care for veterans in this sincere, honest and reasonable fashion, I believe that we can resolve our differences or at least achieve an understanding of each other's position which will permit us to continue to collaborate and cooperate in those fields where we do agree. As I have already indicated, I believe those fields are substantial."

The Board of Trustees while in session in Miami voted, ". . . that the chairman appoint a committee of three to cooperate with a similar committee from the American Legion." Those selected were: Drs. Elmer Hess, then President-Elect; David B. Allman, member of the Board; and Louis M. Orr, chairman of the Committee on Federal Medical Services, elected Vice Speaker of the House of Delegates in Atlantic City. Dr. George F. Lull, Secretary and General Manager of the American Medical Association, and Mr. Thomas A. Hendricks, Council Secretary, were appointed to act in a staff capacity at liaison committee meetings.

In view of the efforts of the Board of Trustees to retain a good liaison with the American Legion, the Newsletter, for the present, has been devoted to general medical programs of the federal government. In addition, the revisions of the Factbook on VA Medical Care and the Speaker's Kit on VA Medical Care have been postponed pending the results of these liaison meetings, since both involve interpretations of statistical data.

Recommendations

The Committee on Federal Medical Services, in view of the liaison conferences between the American Legion and the American Medical Association, authorized by the Board of Trustees, and in view of the relationship of these conferences to the continuation of the program in regard to veterans' medical care begun last year by the committee, recommended to the Council that it request the Board of Trustees to report to the House of Delegates on the recommendations of the American Medical Association Liaison Committee with the American Legion as to areas of understanding between the two organizations and suggestions as to the extent of future educational programs on veterans' medical care, so that the Committee on Federal Medical Services will know how fast and in what direction it is to proceed, and also to report on the suggestions of the Liaison Committee as to any amendments, changes, or interpretation of the present policy on veterans' medical care that may be desirable.

Committee on Prepayment Medical and Hospital Service

At its December, 1954, meeting, the Council on Medical Service appointed two new members to replace Drs. T. J. Danaher, Torrington, Conn., and H. E. Nichols, Seattle, deceased. These new members are Drs. John Conway, Clovis, N. Mex., and Quentin Kintner, Port Angeles, Wash. Others on the Committee are Drs. Percy E. Hopkins, chairman, Chicago; Carlton E. Wertz, Buffalo; O. B. Owens, Alexandria, Va.; Charles L. Farrell, Pawtucket, R. I.; and Carl F. Vohs, St. Louis.

Voluntary Health Insurance

Voluntary Health Insurance has continued to make impressive gains. According to the "Preliminary Report of the Annual Survey of the Health Insurance Council," the following numbers of persons were protected by the designated types of benefits by the end of 1954:

Hospital expense	$101,493,000
Surgical expense	85,890,000
Regular medical Expense	47,248,000
Major hospital and medical expense	2,235,000

Percentage-wise the above figures reflect enrollment growth over the numbers of persons insured at the end of calendar year 1953 respectively for each type of benefit: hospitalization—4.3%; surgical expense—6.1%; regular medical—10.7%; and major hospital and medical expense—83.0%. These rates of growth may be compared favorably with the increase in population, which was estimated at about 1.7% during 1954.

As previous reports of the Council on Medical Service have indicated, the full impact on the health care economy of the country is not measured in enrollment figures alone. Impressive as enrollment gains are, the effectiveness of voluntary efforts is furthered by (1) improvements in existing types of coverage; (2) development of newer types of benefits and methods of administration; and (3) continued experimentation in making such protection available on an equitable and sound basis to increasing numbers of self-supporting citizens who desire it.

In terms of money, an increasing portion of health care expense was met through the medium of insurance. Reliable sources indicate that in excess of 2 billion dollars was paid to—or on behalf of—insured persons and their covered dependents during 1954. This amount represented an increase of 11% over the aggregate benefits paid during the previous year. At times, the benefit payments of health insurance are contrasted to the aggregate health bill of the nation. This may be done by proponents for government intervention and for the purpose of indicating the extent to which the health care expense, including loss of income due to disability, is not met by the various voluntary efforts. In this regard the "Preliminary Report of the Health Insurance Council" states, in part:

> While such comparisons may be of interest, they tend to imply that the function of health insurance is to meet fully all costs of ill health and to reimburse in full for lost income.
>
> Actually, there are several reasons why the purpose of health insurance should be conceived as a more modest one. For instance, relatively small or regularly recurring items of expense can be better met by family budgeting than through insurance. Moreover, some health expense items of a quasi-luxury nature, such as extra cost of hospital care in a private room, are largely within the individual's own control, and hence are not readily insurable.

That Preliminary Report goes on to state:

> For reasons of this sort, the aim of voluntary health insurance can best be described as being to provide timely benefits in sufficient amounts to prevent ill health and accident from leading to financial hardship.

The type of protection that increased the largest percentage during 1954 was major hospital and medical expense. This type is referred to frequently by other terms such as "Major Medical" or "Catastrophe Coverage." Initiated in 1951 on a controlled experimental basis between elements of insurance and industry, this type has grown rapidly. Relatively recently several medical society approved programs have offered this protection either independent of or supplemental to their other forms of protection.

In still another realm, medical society approved and related plans, including Blue Shield, and private insuring organizations have been giving increased attention to the problem of insuring or continuing to insure persons who have attained or passed the normal retirement age. These efforts as they increase and improve will undoubtedly be advantageous to continuing numbers of our population.

SIMPLIFIED INSURANCE CLAIM FORMS

As a continuing effort to comply with some of the resolutions adopted by the House, the Council on Medical Service has endorsed the recommendation of its Committee on Prepayment Medical and Hospital Service in approving six simplified insurance claim forms that were designed to gather medical information to facilitate claims administration. These six forms, with their identifying symbols and titles, which indicate their intended use, are as follows:

ID-1—Attending Physician's Statement—Accident or Sickness (Individual Insurance)
IPHS-1—Attending Physician's Statement—Accident or Sickness (Individual Hospital or Surgical)
IDS-1—Attending Physician's Supplementary Statement—Accident or Sickness (Individual Insurance)
GD-1—Attending Physician's Statement—(Group Insurance)
GS-1—Surgeon's Statement—(Group Insurance)
GDS-1—Attending Physician's Supplementary Statement (Group Insurance)

Approval of ID-1 was with the understanding that the second portion of item 2 would be changed from "If fracture of long bones, state whether fracture is through shaft or extremity" to "If fracture of long bones, state type and location."

In essence, the six forms are adaptations of two basic forms. One for individual (nongroup) insurance and the other for group coverage. For the most part, the supplementary statements will be used only in those cases that continue over an extended length of time; in such instances, the companies need proof of continuing loss or disability so as to audit proper benefits.

The form designated as GS-1 was the first one to be approved. It was reproduced in THE JOURNAL under date of Feb. 12, 1955, accompanied by a brief article. That same issue of THE JOURNAL also contained a brief editorial on the subject of simplified claim forms.

All of the simplified claim forms were developed by a special committee of the Health Insurance Council. That special committee conferred at various intervals with the Committee on Prepayment Medical and Hospital Service acting in behalf of the Council on Medical Service. The Council on Medical Service has been assured by the Health Insurance Council that most of the companies that write a major portion of the accident and health insurance in the country have agreed to use these newer forms. Accordingly, the benefits of these efforts should soon accrue to the members of the profession.

While the above developments should be encouraging to the profession, these efforts may indicate the desirability of further refinements in the future. If more improvements are suggested, it is planned they will be encouraged to the end that the physicians will be required to spend less time in claim form completion and, at the same time, provide insurers the necessary data for prompt claim administration.

It is understood that the Health Insurance Council plans to prepare descriptive pamphlets outlining each of the claim forms in detail. Should these pamphlets be deemed appropriate, the Council on Medical Service and its Committee on Prepayment Medical and Hospital Service may participate in their distribution to the profession through the constituent associations and their component societies. Additional publicity may be submitted to THE JOURNAL on a supplemental basis.

STANDARD NOMENCLATURE FOR SURGICAL PROCEDURES

Another activity of the insurance industry in which representation from the Committee on Prepayment Medical and Hospital Service has been sought is an effort toward the standardization of nomenclature for surgical procedures for which insurance benefits are payable. The purpose of the effort is twofold. One is to facilitate claim payments in cases where employers or trustees actually pay benefits under so-called "self administered" group insurance programs. The other is primarily to assist in statistical and actuarial studies and analyses regarding the incidence of various types of operations covered by insurance programs.

In a growing number of instances, employers (trustees in event a union or association is the named insured in behalf of members) administer and make claim payments under group plans arranged between the employer and an insurance company for benefits accruing to employees. Under such circumstances, claim payments are processed by nonmedical personnel without the immediate availability of medical talent to translate professional terms into nonmedical or lay terms.

The current effort is to adapt the Standard Nomenclature of Diseases and Operations edited by the American Medical Association and modified somewhat by Blue Shield. Added to this is a proposed cross reference between technical and nontechnical terms. If brought into being and if adopted generally, it conceivably could result in reducing further the time required by physicians for completion of claim forms. As claim payments are facilitated, it could result in more prompt payment for health care that is financed through these programs.

PHYSICIAN'S ATTITUDE SURVEY

The Committee on Prepayment Medical and Hospital Service has compiled a vast amount of data from the responses to the questionnaire designed to elicit opinions of the medical profession concerning certain phases of voluntary health insurance. Some of these data would appear to be of interest and value, not only to the Council and its committees but also to insurance underwriters and administrators as well. In tabulating and coding the responses, the Committee received valuable suggestions and assistance from the Bureau of Medical Economic Research. Arrangements are being made to meet with a special committee designated by Blue Shield Medical Care Plans, Inc., for the purpose of discussing the method as well as format of reporting these results. It is possible that some of the results will be prepared for publication by the time of the clinical meeting.

INSURANCE ABUSES

The occasional instances of alleged insurance abuses brought to the attention of the Council and its Committee on Prepayment Medical and Hospital Service are processed, for the most part, by the staff. Information is gathered and channeled to the appropriate committees of the medical societies in the areas where the misunderstandings occur. There appears to be a lessening of these instances, which may indicate a better understanding among insuring organizations, insured persons, and the members of the profession. On the other hand, some of the seeming abatement of such problems may be due to the fact that interest parties are resolving their misunderstandings locally. At any rate, the Council through its Committee, is continuing its interest in such problems to the end that the various voluntary approaches may be effective and redound to the benefit of the public.

Revision of Standards

It will be recalled that the House of Delegates specified at the termination of the Seal of Acceptance program that the standards for voluntary health insurance would be maintained as guides to all who were interested in sponsoring and/or operating such programs. At the time of preparing this report, the Committee on Prepayment Medical and Hospital Service has named a drafting subcommittee for the purpose of preparing suggested modifications and revisions of the standards. That subcommittee has also scheduled a meeting. Any results of these efforts will be reviewed not only by the Committee but by the Council as well before suggesting appropriate modifications to the House. In this realm the Council reports continued activity with the assurance to the House of Delegates that specific suggestions, when developed, will be reported promptly.

Commission on Medical Care Plans

Among the physicians named by the Board of Trustees to serve on the Commission on Medical Care Plans are members of the Council on Medical Service as well as members of some of its committees. An appreciable amount of effort has been devoted to the preparation of material for that assignment.

The staff of the Council, as well as staff personnel from other units of the headquarters organization, has been called upon to assist in the review and compilation of appropriate data for Commission consideration. Due to this and other factors, the annual revision and publication of the voluntary health insurance brochure has been delayed. Since the "Survey of the Extent of Accident and Health Insurance Coverage in the United States," published annually by the Health Insurance Council, is not scheduled for distribution until late in the fall, it is expected that the two brochures will be completed before the time of the clinical meeting.

Committee on Relations with Lay-Sponsored Voluntary Health Plans

The Council on Medical Service appointed Dr. A. C. Scott Jr., Temple, Texas, to replace Dr. Robert B. Homan of El Paso as the Council representative on this Committee. The remaining Committee membership consists of Drs. H. Russell Brown, chairman, Watertown, S. D.; F. J. Elias, Duluth, Minn.; Lewis A. Alesen, Los Angeles; George S. Klump, Williamsport, Pa.; and James Stevenson, Tulsa, Okla.; and Mr. C. H. Crownhart, Madison, Wis.

The Committee on Relations with Lay-Sponsored Voluntary Health Plans has continued its interest in third party mechanisms organized or operated to assist in financing health care costs. As is the case with the Council and the Committee on Prepayment Medical and Hospital Service, two representatives of this Committee serve also on the Commission on Medical Care Plans. For the most part, this Committee concerns itself with those agencies that are not normally identified as private insurance and are not originated under the sponsorship of the medical profession.

This Committee has started drafting revised Principles for Lay-Sponsored Plans and is also in the process of attempting to define more specifically what is meant by the term lay-sponsored. The Committee has had the advantage of the assistance of a medical student during the summer months, who has undertaken several field trips and has correlated reference materials relating to programs of nonmedical origin or sponsorship. While the development of criteria with respect to third party mechanisms is difficult, at best, the Council through this Committee is endeavoring to approach this problem objectively and with equal concern for the valid interests of both the consumers and providers of health services. The information in this realm gathered a result of the field trips will be of value to the Commission edical Care Plans as well as to the Council and the House. reports are processed, they will be made available to the ission, the profession, and others who are interested. Also, revised criteria for evaluating lay sponsored health programs that may result will be reviewed carefully by the Committee and the Council prior to being recommended to the House for its consideration.

Special Projects

Each year the Council undertakes or cooperates in a number of projects not within the scope of any one of its committees. Some of these are reviewed briefly in the following sections of this report.

Medical Facilities Project

The staff of the Council has assisted in the development of "A Planning Guide for Establishing Medical Practice Units," mentioned previously under the report of the Committee on Medical and Related Facilities. This project, financed by the Sears-Roebuck Foundation, has served to fill a great need. If the requests coming to the Council are any indication, more and more physicians are becoming interested in building their own medical unit or facility. In other words, physicians seem to be leaving the big office buildings in favor of a small unit devoted entirely to medical and, perhaps, dental practice. This "Planning Guide" not only will be most helpful to this group of physicians but will very likely stimulate other similar booklets, all of which will find a ready market among present-day physicians.

Hospital Accreditation Study

The Council staff is assisting the special committee appointed to study the program of the Joint Commission on Accreditation of Hospitals. This, again, will require both field work and the collection and correlation of existing information and opinion.

Rehabilitation Project

During the summer the Council staff has undertaken to visit a number of areas to determine just what is meant by a community's rehabilitation program. The first step in this project was the development of a definition of the term, rehabilitation. To accomplish this, all of the available literature has been reviewed in an effort to bring together the many unvarying concepts. The areas visited to date are Hartford and the state of Connecticut; Kansas City, Mo.; and Dayton and Cincinnati, Ohio. It is anticipated that a special study report will be made on this project.

County Society Activities Survey

One of the early projects of the Council on Medical Service was a survey of county medical society activities. This was undertaken to learn where and how the American Medical Association could assist and work more closely with the local societies. The first survey, in 1948, included some 200 component societies and stimulated council activities in such areas as grievance committees, emergency call plans, maternal and child health, and indigent care. Since 1948, these surveys have been repeated about every two years with an ever increasing response. In 1951, some 750 societies replied; in 1953, over 930 replied; and this year, 1955, 1,211 have replied. The 1,211 replies actually represent over 1,900 of the nation's 3,000 counties since 275 of the medical societies reporting cover more than one county. Included are 87% of all societies with over 200 members; 81% of all societies with from 100 to 199 members; and 75% of the societies having from 50 to 99 members. It is evident from this response that the survey will provide a rather complete inventory of medical society activities.

This year's questionnaire is considerably more comprehensive than any of the previous ones. It was developed with the cooperation of the Department of Public Relations and includes many questions relating to public relations programs. Actually, nine general subjects are covered: (1) general information, dealing with membership; (2) meetings; (3) committees; (4) programs and activities; (5) insurance; (6) dues; (7) office; (8) personnel; and (9) additional or miscellaneous information.

Programs and activities, a major subject of the survey, are broken down into four types: (1) society programs, dealing with the society's professional relationship with the patient and with other community agencies; (2) public education programs, having to do with the interpretation of the society's medical and socioeconomic activities to the general public; (3) community programs, concerning the society's formal or informal participation in programs sponsored by voluntary or governmental agencies; and (4) group insurance programs, including the various types of insurance coverage available to society members as a group through the county society.

The section on personnel provides data not only on the number of societies with executive secretaries but also on the number of other employees on society payrolls. The section on finances shows the amount of dues per society member for 1955 as contrasted with 1954, the number of societies increasing or decreasing their dues, and the number that made special assessments during 1954.

In the earlier surveys, replies were tabulated in four groups, according to the number of members: 1—less than 100 members; 2—100 to 200 members; 3—200 to 300 members; and 4—over 300 members. The 1955 replies have been tabulated in six groups. The first three cover societies with less than 14 members, 15 to 49, and 50 to 99 members respectively; and groups 4 to 6 the same as 2 to 4 in the first surveys. Since the variation in activities with the size of the society in groups with less than 100 members is greater than that between societies of 100 and 300 members, a more detailed tabulation provides a much clearer picture of the increased activity that accompanies an increase in the number of members. In general, the survey shows that the larger societies have more activities, as might be expected, and a lower percentage attending meetings. The survey indicates that most societies having sufficient members to engage in organized programs take their obligations seriously, both to their patients and to the community at large. A detailed report will be published and made available to all medical society officers and executives.

MILITARY FACILITIES SURVEY

At the request of the Board of Trustees, the Council on Medical Service has cooperated with the Council on National Defense in a pilot survey of civilian medical resources as they relate to military needs. The purpose of the survey was to undertake to determine whether qualified civilian physicians are available to provide certain authorized medical services for civilian employees of military departments, dependents of such employees, dependents of military personnel, and military patients, and, if so, the extent of such services as to numbers of available physicians (by specialty) and the type of financial or other contractual arrangements on which these services could satisfactorily be provided.

Field visits were made to Seattle and vicinity by staff members of the two Councils to interview representatives of local medical societies and officers of military establishments in the area. The findings of the staffs of the two Councils have been reported to the Board of Trustees.

GRIEVANCE COMMITTEE STUDY

The Council staff has served the special committee of the House of Delegates established to develop standards or guides for grievance committees. A considerable amount of material has been prepared for the committee, both from existing files and from a special field survey made during the summer. This has necessitated tabulation and summarization of data for committee consideration. The committee plans to make its report to the Board of Trustees prior to the clinical meeting of the House of Delegates.

Respectfully submitted:

J. D. McCarthy, Chairman.
H. B. Mulholland.
Arthur C. Scott Jr.
R. B. Chrisman Jr.
Carlton E. Wertz.
Robert L. Novy.
Walter B. Martin.
Elmer Hess
David B. Allman
George F. Lull Ex Officio.
Ernest B. Howard
Austin Smith
Mr. Thomas A. Hendricks, Secretary.

REPORT OF THE COUNCIL ON CONSTITUTION AND BYLAWS

To the Members of the House of Delegates of the American Medical Association:

The Council on Constitution and Bylaws has held meetings on the following dates since its last report to the House of Delegates: one in Chicago, Oct. 29, 1954; one during the Clinical Meeting in Miami, Nov. 28, 1954; and two during the Annual Meeting in Atlantic City, June 5 and June 8, 1955. The discussions of the Council at these meetings centered around two main problems: (1) a consideration of matters referred by the Board of Trustees and the House of Delegates, and (2) revision of the Principles of Medical Ethics.

Matters Referred

A recommendation of the Council pertaining to the jurisdiction and duties of the Judicial Council was resolved by the House of Delegates.

In response to a request from the Board of Trustees, certain changes recommended by the Council were made in the Constitution and Bylaws in order to effectuate a reorganization of the Council on Scientific Assembly. The Council made a careful study of Chapter I, Section 7 of the Principles of Medical Ethics, which provided: "An ethical physician will not receive remuneration from patents on or the sale of surgical instruments, appliances and medicines, nor profit from a copyright on methods or procedures. The receipt of remuneration from patents or copyrights tempts the owners thereof to retard or inhibit research or to restrict the benefits derivable therefrom to patients, the public or the medical profession." It was felt that it is not the act of obtaining a patent that is unethical but the use which is made of it. Consequently, the Council recommended that Section 7 of Chapter I of the Principles of Medical Ethics be deleted and that the following statement be substituted for it: "A physician may patent surgical instruments, appliances, and medicines or copyright publications, methods, and procedures. The use of such patents or copyrights or the receipt of remuneration from them which retards or inhibits research or restricts the benefits derivable therefrom is unethical." The House approved the substitution recommended.

The Council considered certain changes in the Bylaws requested by the Council on Scientific Assembly and made recommendations to the Board of Trustees regarding changes in Chapter III, Section 1, and Chapter VII, Section 4.

Revision of Principles of Medical Ethics

The Council is continuing its work on revision of the Principles of Medical Ethics, and additional recommendations will be made in a supplementary report that will be presented to the House of Delegates during the clinical meeting to be held in Boston, Nov. 29 to Dec. 2, 1955.

The Council would call to the attention of the House of Delegates a change made in the Principles of Medical Ethics in Atlantic City in June, 1955, by direct action of the House rather than by recommendation from the Council. Existing Section 8 of Chapter I, before amendment, was entitled "Ownership of Drugstores and Dispensing of Drugs and Appliances by Physicians" and provided that "It is unethical for a physician to participate in the ownership of a drugstore in his medical practice area unless adequate drugstore facilities are otherwise unavailable. This inadequacy must be confirmed by his component medical society. The same principle applies to physicians who dispense drugs or appliances. In both instances, the practice is unethical if secrecy and coercion are employed or if financial interest is placed above the quality of medical care. On the other hand, sometimes it may be advisable and even necessary for physicians to provide certain appliances or remedies without profit which patients can not procure from other sources." This was deleted and the following statement was substituted therefor: "Dispensing of Drugs and Appliances by Physicians." "It is not unethical for a physician to prescribe or supply drugs, remedies, or appliances as long as there is no exploitation of the patient."

In concluding this report the Council expresses its deep regret because of the death of Dr. James Stevenson on Sept. 11. He was an original member of this Council and made invaluable contributions to its deliberations. Because of illness he had been forced to resign from the Council in June, 1955, and the House of Delegates selected Dr. Warren W. Furey of Chicago to complete his unexpired term.

Respectfully submitted,

Louis A. Buie, Chairman.
Stanley H. Osborn.
Floyd S. Winslow.
Britton E. Pickett Sr.
Warren W. Furey.

WORLD MEDICAL ASSOCIATION

The World Medical Association, of which the American Medical Association is a member, has continued to grow and has become a very powerful sounding board for medical affairs on the international level. The ninth annual General Assembly in Vienna in September, 1955, was the best of any of the meetings the organization has held to date.

The success of the World Conference on Medical Education held in London, England, two years ago under the auspices of the World Medical Association, has prompted planning for another conference to meet in 1959. In all probability this conference will concern itself with postgraduate studies.

Membership in the World Medical Association is held by organizations only; that is, by the national medical associations of various countries. However, physicians and other persons interested may hold membership in the United States Committee, which helps to support the World Medical Association. The Board of Trustees of the American Medical Association urges that many more American physicians than now belong join the United States Committee and give their support to this worthy cause.

REPORT OF THE AMERICAN MEDICAL EDUCATION FOUNDATION

To the Members of the House of Delegates of the American Medical Association:

Since its inception in 1951, the American Medical Education Foundation has raised $4,437,186.49 in unrestricted funds to assist the nation's 80 approved medical schools. This fifth annual report to the House of Delegates of the American Medical Association covers the period of Sept. 1, 1954, through Aug. 31, 1955. A. M. E. F. income received during that time amounted to $716,370.37 from 23,988 contributors. During the 1954 calendar year, the Foundation received $1,181,928.63 from 22,996 contributors, an increase of 4,820 individual contributions and $91,965 in income over the corresponding period the preceding year.

National Fund Grants

In the fourth annual A. M. E. F. report, which was presented to the House of Delegates in November, 1954, at Miami, Fla., it was noted that the National Fund for Medical Education had distributed $6,941,057 to the medical schools since the organization of A. M. E. F. and the National Fund. However, in view of recommendations made in April, 1955, by the executive committee of the National Fund and approved by members of the Board of Directors of the Foundation prior to its meeting in June, 1955, at Atlantic City, A. M. E. F. funds were not transferred in July, 1955. Since members of both governing bodies agreed that grants to the medical schools should be disbursed on a calendar year basis, the National Fund will not distribute grants to the medical schools during the current year. The next National Fund grants to the medical schools will be made after the close of business on Dec. 30, 1955, and will include all contributions received by both organizations during the period July 1, 1954, through Dec. 30, 1955.

As of Aug. 31, 1955, the Foundation had $876,089.37 available for transfer to the medical schools through the National Fund for Medical Education. Of this figure, which includes the 1955 American Medical Association grant, $465,386.38 has been designated for specific medical schools and $410,702.99 will be added to the National Fund's income to make up the Class A and B grants to the nation's 80 approved medical schools. The National Fund's income on Aug. 31, 1955, amounted to $1,675,516.86. Thus, more than 2 million dollars is now available through both organizations to make up grants to the medical schools. Including designated moneys held by the Foundation, the 80 medical schools will receive approximately $2,500,000 in January, 1956.

If contributions to the Foundation and the National Fund during the last quarter of the current year equal or exceed financial gifts donated during the corresponding period in 1954, moneys transferred to the medical schools will exceed 3 million dollars, comprising voluntary financial donations to both organizations during the 18 month period.

Foundation Income

Contributions to the Foundation received during the first eight months of 1955 amounted to $512,823.58, including the 1955 grant of the American Medical Association, a decrease of $463,776.72 from the corresponding period last year. It must be pointed out that, at the clinical meeting of the Association in Miami last year, the House of Delegates voted to reduce the A. M. E. F. seed grant from $500,000 to $100,000 in 1955. In addition, the Foundation also received in 1954 a $100,000 treasury gift from the California Medical Association. Organizational gifts to the Foundation that totaled $142,367.93 on Aug. 31, 1955, are $475,724.07 less than they were at the end of August, 1954. Although individual support of the Foundation has increased from 14,647 contributors during the first eight months of 1954 to 15,639 donors during the comparable period in 1955, contributions were not large enough to make up the $500,000 diminution from the American Medical Association and California Medical Association grants of last year.

Annual Tax Mailing

During the last quarter of 1954, the Foundation received $208,906.79 principally from the annual tax mailing that was distributed in November to subscribers to The Journal of the American Medical Association. In order to accrue added income during the last quarter of 1955, the Foundation's annual tax mailing will be sent out six weeks earlier. State and local medical societies are also initiating direct mail appeals to their memberships to increase the Foundation's income.

Annual Report

The fourth annual report of the American Medical Education Foundation was distributed to all contributors, to executives and officers of state medical societies, to members of the House of Delegates of the American Medical Association, and to medical school deans, alumni directors, university presidents, and executives of the National Fund for Medical Education. Due to the prohibitive expense of publishing individual names of contributors in a supplement to the report, IBM listings of contributors to A. M. E. F., as well as the names of members of the medical profession who contributed financially to the medical schools, were sent to officers of all state medical societies and A. M. E. F. state committee chairmen.

In addition to the 22,996 members of the medical profession who contributed $1,181,928.63 to the Foundation during 1954, the annual report statistics also indicated that 34,582 physicians gave $1,824,269.15 directly to the medical schools during the same period. By maintaining and correlating statistics regarding the profession's support of medical education through both sources, the Foundation's 1954 report pointed out that 57,578 members of the medical profession contributed $3,006,197.78 to medical education last year.

Annual Meeting of State Chairmen

The fourth annual meeting of A. M. E. F. state chairmen was held in Chicago on Jan. 23, 1955. Representatives from 44 states were present and participated in discussions of mutual interest to committee members. The 1956 A. M. E. F. campaign will be launched at the fifth annual meeting which is scheduled for Sunday, Jan. 22, 1956, at the Drake Hotel in Chicago.

Promotional Activities

Officers and members of the Foundation's staff have attended 34 state and local medical society and auxiliary meetings during the past year. In addition, they have attended several meetings throughout the country to assist state committees in the organization of their A. M. E. F. statewide campaigns. Approximately 400,000 pieces of promotional literature were mailed during the year through the annual tax and renewal appeals and to state and local medical societies for distribution to their memberships.

New Sources of Income

Following the original dues increase plan (of a stipulated amount designated for A. M. E. F. from state medical society dues), which was initiated by the Illinois State Medical Society in 1952 and the Utah State Medical Association in 1954, the house of delegates of the Nevada State Medical Association voted a dues increase of $20 per member to be paid to the Foundation in 1955. By vote of the houses of delegates of the California Medical Association and the Idaho State Medical Association, the Foundation will also receive in 1956 dues increases of $10 per member from the two associations. However, the dues increase of the California Medical Association is to be earmarked with 80% of the total contribution designated to three California medical schools and the remaining 20% designated to the 41 privately endowed medical schools.

During the first eight months of 1955, the Foundation also received treasury gifts from the medical societies of the states of New Jersey, $25,000; Oregon, $5,000; Massachusetts, $3,000; and Tennessee, $1,000.

Particular appreciation must be given to the working A. M. E. F. committees in the state medical societies of Arizona, California, Idaho, Illinois, Nevada, Oregon, and Utah for their efforts in seeking dues increases for A. M. E. F. since 1952. From the dues increases already adopted and those which take effect in 1956, the Foundation can expect approximately $350,000 from these sources next year.

Alumni Directors' Meeting

In an attempt to ascertain the cause and effect of growing frictions between alumni fund raising programs of the medical schools and A. M. E. F., a meeting was held in Chicago on March 12, 1955. Seven medical alumni directors met with the executive secretary of the Foundation to work out a program whereby physicians would not be sent dual solicitations to give financial assistance to the medical schools. The nine point program suggested by the alumni directors was presented to the Board of Directors of the Foundation in June, 1955, and action was deferred on the proposals. However, every effort will be made to cooperate with medical alumni directors, and the Foundation will continue to correlate statistics regarding physicians' financial contributions of an unrestricted nature that are donated directly to their medical alumni associations.

Woman's Auxiliary Activity

During the 1954-1955 auxiliary season, members of the Woman's Auxiliary to the American Medical Association raised $80,539.65 for the American Medical Education Foundation. At the annual convention of the Auxiliary in Atlantic City, N. J., Mrs. George Turner, past-president, presented the Foundation with a check in the amount of $62,743.65, which represented contributions raised by Auxiliary members. A special note of appreciation must be extended to Mrs. Frank Gastineau of Indianapolis, national A. M. E. F. Auxiliary chairman, the 4 regional auxiliary chairmen, and 45 A. M. E. F. state auxiliary chairmen who maintained and acknowledged all donations from auxiliaries to the Foundation during the last fiscal year. A. M. E. F. Awards of Merit for outstanding support of the Foundation were presented to 12 state and county auxiliaries and two members at the national Auxiliary convention in June. The national Auxiliary also gave awards to 14 state auxiliaries whose members raised more than $1.00 per member for A. M. E. F. during the fiscal year.

Plans for the 1955-1956 auxiliary season include a special campaign that will be carried out during Medical Education Week, April 23-30, 1956. By approval of the Auxiliary Board in June, members of the Woman's Auxiliary may participate as individuals in the 80 Dimes Campaign of the Women's Division of the National Fund for Medical Education. Auxiliary members will also assist in the organization of local sponsoring committees of the National Fund in 31 key industrial areas across the country. The 80 Dimes Campaign is designed to alert the American public, particularly women's groups, to the financial needs of medical education and to point up the necessity of keeping our medical schools free from federal subsidy. In conjunction with the campaign, the Foundation has purchased prints of the National Fund's motion picture film, "Danger at the Source," which is available to state and local medical societies and auxiliaries. Trailers to the film with commentaries by Miss Kate Smith, chairman of the Women's Division of the National Fund for Medical Education, and Mrs. Mason Lawson, president of the Woman's Auxiliary to the American Medical Association, will be available to auxiliaries for exhibit at meetings of women's groups.

In Appreciation

The directors of the American Medical Education Foundation wish to extend their sincere appreciation to those persons and organizations that have consistently supported the Foundation. State and county medical society executives, auxiliaries, and A. M. E. F. committee and auxiliary chairmen deserve wholehearted recognition. The Board also wishes to thank the American Medical Association for its $100,000 grant for 1955 and the special allocation needed to administer the Foundation's activities. Special commendation must also be directed to the Editor and staff of THE JOURNAL for institutional advertising space in THE JOURNAL and for their assistance in the preparation and publication of editorial material relative to the progress of the Foundation.

Although statistics related in this report indicate that Foundation income for 1955 will be considerably less than it was in the preceding year, the Board wishes to point out that individual support of A. M. E. F. has increased during the first eight months of the current year. Since it is impossible to predict the actual financial contributions that will be donated by members of the medical profession to the Foundation during the remaining quarter of the current year, the Board requests that members of the House make every effort to urge their respective memberships to take necessary action to increase the Foundation's income for 1955.

When the A. M. E. F. was organized in 1951, the medical profession was alerted to the fact that our medical schools were operating at a 10 million dollar annual deficit over and above contributions such as those given directly to medical alumni programs and income from endowments. Leaders from business and industry agreed to seek 8 million dollars annually through the National Fund for Medical Education with the balance to be sought from the medical profession through the American Medical Education Foundation.

The Board respectfully submits that, if the medical profession is to keep its pledge to raise 2 million dollars annually in unrestricted funds to assist the nation's medical schools, every member of the profession must assume a portion of that responsibility and contribute generously to the Foundation.

Respectfully submitted,

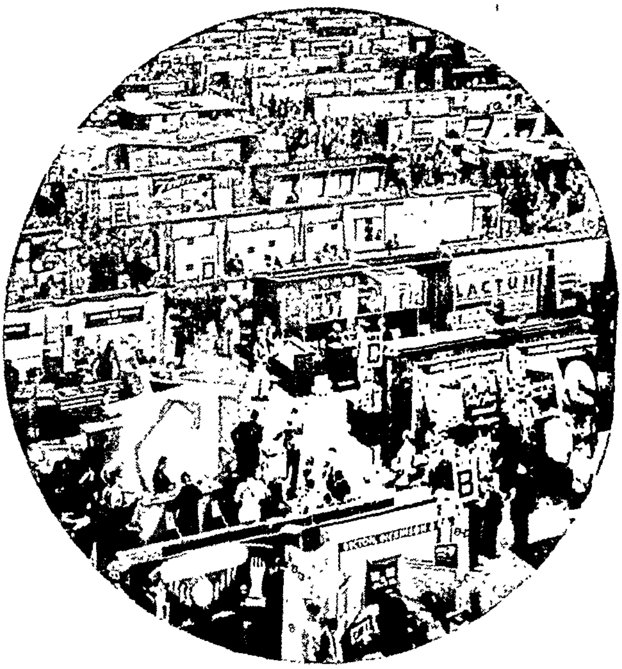
LOUIS H. BAUER, President.
GEORGE F. LULL, Vice-President.
EDWARD L. TURNER, Secretary-Treasurer.
DONALD G. ANDERSON.
GUNNAR GUNDERSEN.
EDWIN S. HAMILTON.
VICTOR JOHNSON.
WALTER B. MARTIN.
J. J. MOORE.
HARVEY B. STONE.
HERMAN G. WEISKOTTEN.
F. J. L. BLASINGAME.
ELMER HESS.
DWIGHT H. MURRAY. } Ex officio.
AUSTIN SMITH.
L. W. LARSON.
HIRAM W. JONES, Executive Secretary.

A. M. A. TECHNICAL EXPOSITION

NINTH CLINICAL MEETING

BOSTON, MASSACHUSETTS

NOVEMBER 29-
DECEMBER 2, 1955



To a busy doctor an opportunity to see a compact display of new developments in his field is too good to miss. He realizes the value of a quick check-up on new ideas and new methods as well as new uses for the old, established products. And what better way to visualize these developments and improvements than to watch them in action in A. M. A.'s TECHNICAL EXPOSITION!

Here in a short 3½-day span, hundreds of products and services will be demonstrated for the benefit of the physician who comes to the meeting. More than 130 firms are participating with a large staff of attendants ready to bring the exhibits to life—to make them a summary of progress in pharmaceuticals, medical books, diagnostic aids, surgical instruments and other specialized articles and services.

Located in the Main Arena of Mechanics Hall, the Exposition will be open from 8:30 a. m. to 5:30 p. m. each day of the meeting, closing Friday at 12:30. These hours together with close proximity to Doctors' Registration, Scientific Exhibits, Meeting Rooms, and Color Television Programs make it a convenient place to visit every day. We hope to see you there.

THOS. R. GARDINER
BUSINESS MANAGER AND DIRECTOR OF TECHNICAL EXHIBITS

BOOKS

A. M. A. Publications
Booth A-1

This will be the A. M. A.'s hospitality booth where you may discuss questions regarding any of the services of your Association or merely stop by to say "Hello." Sample copies of *THE JOURNAL A. M. A.*, the nine *SPECIALTY JOURNALS, TODAY'S HEALTH* and other A. M. A. publications will be on display. Here too you will have a chance to learn about the new features to appear in the 19th edition of the *AMERICAN MEDICAL DIRECTORY*. Order forms for this 1955 Directory as well as other publications will be available and representatives will be glad to discuss them with you.

Encyclopaedia Britannica, Inc.
Booth A-33

Encyclopaedia Britannica are announcing their biggest release in nearly 200 years. Sharing the honors in booth A-33 will be the new 1955 Edition of *Encyclopaedia Britannica*, the *Yearbook* and the *World Atlas*. Sample research reports will also be of interest.

Encyclopedia Americana
Booth G-16

The impressive list of what went into their first printing of the 1955 *Encyclopedia Americana* includes enough paper to fill 4,000 freight cars, metal to make 1,000 automobiles, cartons to stack 1,250 times as high as the Empire State Building and enough man hours of labor to make 35,000,000 pairs of shoes. This gives some idea of the worth of their achievement; but for a better estimate of its value you are invited to inspect the latest edition of this well-known reference work in booth G-16. All those who register here will receive a colorful world atlas with the compliments of Encyclopedia Americana.

Grune & Stratton, Inc.
Booth B-4

Among the new books just coming out, Grune & Stratton have chosen Merrill's *The Treatment of Renal Failure;* Bohler's *The Treatment of Fractures;* the new edition of Storch's *Clinical Fluoroscopy;* Talbott's *Collagen Diseases;* Littman & Zimmerman's *Cryptococcosis;* Kohler's *Skeletal Roentgenography;* and a number of others for your examination in B-4. Such recent publications of clinical import as Fishman et al., *Cardiology Notebook* and Stefanini and Dameshek, *The Hemorrhagic Disorders* will also be available for your inspection.

Lea & Febiger
Booth E-2

Lea & Febiger invite you to see these new books and new editions: Wohl and Goodhart, *Modern Nutrition in Health and Disease;* Lewin, *The Back and Its Disk Syndromes;* Goldberger, *Heart Disease;* Bailey, *Surgery of the Heart;* Master, Moser and Jaffe, *Cardiac Emergencies and Heart Failure;* Pullen, *Pulmonary Diseases;* Merritt, *Neurology;* Twiss and Oppenheim, *Disorders of Liver, Pancreas and Biliary Tract;* Davidoff and Epstein, *The Abnormal Pneumoencephalogram;* Herbut, *Pathology;* Ritvo, *Bone and Joint X-Ray Diagnosis;* Epstein, *The Spine;* and Thienes and Haley, *Clinical Toxicology.*

J. B. Lippincott Company
Booth D-5

J. B. Lippincott Company will present a display of professional books and journals geared to the latest and most important trends in current medicine and surgery. These publications, written and edited by men active in clinical fields and teaching, are a continuation of more than 100 years of traditionally significant publishing.

Little, Brown & Company
Booth E-4

Boston's Little, Brown & Company will be welcoming visiting doctors both at their booth and at their offices at 34 Beacon Street, next to the historic State House. Their exhibit will include such recent publications as Barborka and Texter, *Peptic Ulcer* and Wiles, *Essentials of Orthopaedics*. Other titles selected from the growing list of important books published in the few years since Little, Brown & Company has been in medical publishing will also be displayed.

The Macmillan Company
Booth A-5

The Macmillan exhibit will feature the recently published second edition of Goodman and Gilman's *Pharmacological Basis of Therapeutics.* On display also will be the latest of the *Cornell Conferences on Therapy*, Volume VII, and the new edition of Burstein's *Fundamental Considerations in Anesthesia.*

G. & C. Merriam Company
Booth G-25

Visitors to booth G-25 will be able to examine the new five-volume style of Webster's *New International Dictionary*, Second Edition, with Reference History. Representatives say that this well-known work is regarded as a "supreme authority" by the nation's courts, many colleges and universities as well as the U. S. Govt. Printing Office and is used as a basic reference work for professional and general libraries.

The C. V. Mosby Company
Booth D-12

You are invited to visit the Mosby exhibit at booth D-12 and browse through more than a score of new books and new editions. Prominent among the new titles will be Wilder, *Atlas of General Surgery;* Wiener, *Systemic Associations and Treatment of Skin Diseases;* Givner-Bruger, *Prevention of Disease in Everyday Practice;* and Moseley, *Textbook of Surgery.*

The New England Journal of Medicine
Booth A-31

The exhibit in A-31 will depict the *New England Journal of Medicine* with an emphasis on the editorial style and standards that have made it an outstanding medical journal.

W. F. Prior Co., Inc.
Booth E-18

The physician whose reading hours are limited may find a solution while visiting the W. F. Prior booth. The fact that Tice-Sloan's *Practice of Medicine* is the most used—but least read—of all their books provides the basis for an interesting demonstration. *Practice of Pediatrics* by Brennemann-McQuarrie; Lewis-Walters' *Practice of Surgery;* and Davis-Carter's *Gynecology and Obstetrics* are to be included in the exhibit.

W. B. Saunders Company
Booth C-1

Williamson, *Office Procedures;* Shackelford, *Surgery of the Alimentary Tract;* and Williams, *Endocrinology* are a few of the newest Saunders titles of special interest to clinical physicians. These and their complete line of standards such as Cecil-Loeb, *Medicine;* Nelson, *Pediatrics;* the *Dorland Dictionary;* and the popular *Medical, Surgical and Pediatric Clinics of North America* will be on display in Boston.

State Journal Advertising Bureau
Booth C-13

The State Journal Group is comprised of 33 state medical journals, the official publications of 37 state medical associations. Prospective advertisers are invited to stop at the SJAB booth to secure sample journals, the 1956 rate schedule and other literature.

The Year Book Publishers, Inc.
Booth D-34

Headliner of The Year Book Publishers exhibit will be the new *Color Atlas of Dermatology* edited by Sulzberger & Morrill. Copies of Volume I of this exceptional work will be available for your examination. In addition, many of the new annual Year Books (1955-56 series) will be on display as well as a large group of clinical manuals and monographs of special usefulness in general practice. A few minutes at the Year Book booth should be rewarding.

DIAGNOSTIC DEVICES

Warren E. Collins, Incorporated
Booth D-27

In booth D-27, Warren E. Collins, Inc., will present their complete line of pulmonary function equipment for testing respiratory movements, vital capacity and metabolism; and for artificial respiration. This will include Gaensler-Collins Double Bronchospirometer, the Benedict-Roth and Collins Metabolex and the latest Drinker-Collins respirator unit for long continuous artificial respiration. Representatives look forward to demonstrating their equipment for you.

Coreco Research Corporation
Booth A-15

The Coreco Automatic Color Camera is designed to photograph all surface areas of the body—from 1 to 1 close-up pictures to half-body size—and all cavities of the human body, such as the mouth, throat, ear, nose, vagina and rectum. The camera carries its own specially developed, fully color-corrected bulb and a mechanism for complete control of its color temperature and exposure within the camera itself. A view finder synchronized with the automatic camera mechanism permits viewing until a fraction of a second before exposure. The camera provides for automatic focusing.

The Graf-Apsco Company
Booth A-22

The Graf-Apsco Company, one of America's leading microscope repair houses, invites you to bring your microscope problems to booth A-22. Representatives will gladly give attention to any make or model and even answer the question of what to do with your obsolete microscope. Their interesting exhibit will highlight the new Graf-Apsco microscopes with exclusive features designed into the stand to keep the instrument in good working order.

Ortho Pharmaceutical Corporation
Booth D-28

Ortho will feature their Fibrindex, a new product for rapid 60 second determination of the critical fibrinogen index. Their complete line of blood diagnostic products including anti-Rh sera; anti-Hr sera; blood grouping sera; bovine albumin for Rh testing; and diagnostic specialties such as Papanicolaou smear stains for the early detection of genital and extragenital cancer will provide additional points of interest.

Sanborn Company
Booth D-18

A continuous demonstration of the new Viso-Scope, a 5-inch cathode ray oscilloscope specially designed for use with the Sanborn direct-writing electrocardiographs as well as with more elaborate recording systems used in the research laboratory, will be presented in D-18. The well-known Viso-Cardiette will also be prominently displayed, as will the popular Sanborn Metabulator. In addition full data will be available on Sanborn 1, 2, and 4-channel direct-writing recording systems; the Twin-Beam photographic recorder for simultaneous phonocardiography; the Electromanometer for physiologic pressure measurements; and other Sanborn equipment for cardiovascular diagnosis and research.

DIETETIC PRODUCTS

Beech-Nut Packing Company

Booth D-14

The newest Beech-Nut baby food products and literature regarding them will be displayed at booth D-14. Those interested in the use of Strained and Junior Foods in pediatrics or geriatrics will enjoy discussing the new ideas offered by Beech-Nut nutritionists.

The Best Foods, Inc.

Booth D-26

These fine Best Foods products will be sharing honors in D-26: Hellmann's and Best Foods Real Mayonnaise; French Dressing; Old Homestead French Dressing; Relish Sandwich Spred; Best Foods Mustard with Horseradish; Fanning's Bread & Butter Pickles; and Nucoa Margarine, the first yellow margarine with food value in every single ingredient. Your questions on the properties and uses of Hellmann's and Best Foods products will be welcomed.

The BiB Corporation

Booths E-6, E-8

Visual and refreshing treats are planned for visitors to booths E-6 and E-8. An exact scale model, containing over 1,000 workable parts, of the BiB Corporation canning plant is to be the eye-appealing center of interest. Informative literature on the new BiB Apple Juice with Acerola Juice and on their well-known Orange, Orange-Apricot and Prune-Orange juices will be available. Ice cold samples will provide the taste appeal.

Borcherdt Malt Extract Company

Booth E-25

Practical "Helpful Hints" literature will be available at the Borcherdt booth. Based on suggestions by practicing physicians, one of the pamphlets outlines a weight-gain plan for children. Other reprints to be offered tell of the use of Malt Soup Extract for constipation in infants, children and adults as well as in obstetric patients. Coffee will be served with samples of Malt Soup Extract for proof of palatability.

Carnation Company

Booth C-12

Carnation Company will present their Instant Non-Fat Dry Milk. An excellent, economical source of protein, Carnation Instant is being found useful in diets for the obese, pregnant, geriatric and undernourished patient. Representatives cordially invite you to visit booth C-12 and sample this important new product for evidence of its instant solubility and fresh milk flavor.

The Coca-Cola Company

Booth G-14

Ice-cold Coca-Cola will be served at booth G-14 through the courtesy and cooperation of the Coca-Cola Bottling Company of Boston and The Coca-Cola Company.

Gerber Products Company

Booth E-14

An easy-to-use adaptation of Dr. Albert H. Rowe's substitute formula for cow's milk containing strained meats, available as Gerber Meat Base Formula, will hold the spotlight in E-14. Clinical reports on this new product, closely approximating evaporated milk in complete proteins, carbohydrates, fats and minerals, have been favorable.

Loma Linda Food Company

Booth F-17

The years of experience toward perfecting their hypoallergenic milk powder have provided a substantial background for Loma Linda's newest development, a concentrated liquid milk which derives all of its protein from the soybean. Formulated with other essential nutrients to care for the needs of infants, growing children and adults, Soyalac Concentrated Liquid will be featured at their Boston exhibit. Samples of this flavorful product and of the well-known Soyalac Powder will be served.

M & R Laboratories

Booth E-23

M & R representatives will emphasize those current concepts in infant feeding which stress the critical aspects of preventive care. The physiological role of Similac Powder and Liquid in providing good growth, sound development and optimum clinical benefits will be correlated with this theme. Visitors may obtain reprints of current pediatric studies and the latest M & R Pediatric Research Conference Reports.

Maltex Company

Div. G. F. Heublein & Bro., Inc.

Booth G-29

From the state of Vermont, long known as "breakfast country," two tasty, hot cereals will make their appearance in booth G-29. The new Maypo Oat Cereal with maple flavoring and Maltex Cereal, an old favorite, will be on display. Representatives hope you will stop in for some Maltex cookies and date bread while looking over their charts and diet lists especially planned for doctors.

Mead Johnson & Company

Booth B-2

New displays of their infant formulas, Liquid and Powdered Lactum, will be featured at the Mead exhibit. Additional products to be shown are Liquid Sobee, a hypoallergenic soya formula and Sustagen, a complete therapeutic food for tube and oral use.

Minute Rice and Minute Tapioca

Booths F-27, F-29

Representatives of General Foods will be happy to talk with you about the various uses of Minute Rice and Minute Tapioca. Special diet material for use with these products, both of which are processed without salt, will be mailed on request. Visitors may also register for a complimentary package of Minute Rice and recipes for use in the home.

Pepsi-Cola Company

Booths A-37, A-39

Following its long tradition of refreshing service, the Pepsi-Cola Company again takes pleasure in being host to all visitors attending this Clinical Meeting—serving ice cold Pepsi, "the light refreshment."

Pet Milk Company

Booth E-11

Pet Milk Company invites you to look over the variety of time-saving material available to physicians. Their representatives will be pleased to discuss these and to call your attention to the merits of Instant Pet Nonfat Dry Milk for special diets in addition to the well-known Pet Evaporated Milk for infant feeding. Miniature Pet Milk cans will be offered to visitors.

Postum and D-Zerta

Booths F-25, F-27

At their Boston exhibit, General Foods is planning to tell about regular Instant Postum and will serve delicious milk shakes made with their newest caffein-free beverage, Coffee Flavor Instant Postum. An even newer product, creamy D-Zerta Pudding will share the sugar-free spotlight along with the popular fruit-flavored D-Zerta Gelatin. Professional samples, literature and recipe material will be mailed at your request.

Ralston Purina Company

Booth B-24

The Medical Services Kit offered to you free of charge by the Ralston Purina Company may be examined and ordered at booth B-24. Among the recently revised material available for patient-use, you will find nutritionally sound low calorie, allergy, pregnancy and weight-gain diets as well as feeding directions for infants.

Sanka Coffee

Booths E-24, E-26

General Foods representatives look forward to serving you a cup of Instant Sanka—100% pure coffee from which 97% of the caffein has been removed. They invite you to enjoy a coffee-break often during this Clinical Meeting, and to register for professional samples and patient literature.

The Seven-Up Company

Booth A-21

If you want a quick, refreshing lift with a cool, clean taste, the Seven-Up Company suggests you visit booth A-21 to "Fresh-Up with 7-Up." Representatives will be happy to serve you a chilled bottle of crystal clear 7-Up.

Swift & Company

Booth C-15

The improved flavor and texture of Swift's Meats for Babies and Juniors will be the keynote of the Swift & Company exhibit. Their representatives look forward to discussing this new development in the original all-meat food for infants. Clinical research literature will be available.

HEARING AIDS

Audivox, Inc.

Booth F-31

As a manufacturer of hearing aids and audiometers, Audivox is keenly aware of their responsibility to the medical profession and to the hard of hearing. As successor to Western Electric Hearing Aid Division, Audivox has a heritage of quality and product versatility which forms a basis for the testing and fitting precision demanded to meet this responsibility. With these principles in mind, representatives look forward to seeing those interested in hearing correction.

Zenith Radio Corporation

Booth E-22

The Hearing Aid Division of Zenith Radio Corporation will exhibit its complete line of high quality, low-cost transistor hearing aids. Representatives will be glad to demonstrate the instruments, answer your questions and explain how any physician may test a Zenith hearing aid for thirty days at no cost or obligation. As an added service, Zenith will offer copies of reprints selected to provide useful information to parents and teachers of children with impaired hearing.

OFFICE EQUIPMENT

The Gray Manufacturing Company

Booths D-17, D-19

Dictation equipment ranging from a single machine for your office to systems suitable for clinics and hospitals will be shown by The Gray Manufacturing Company. With the emphasis on a new low rate rental plan to acquaint you with this time-saving method, representatives will demonstrate the PhonAudograph and Telephone Dial System for recording from several offices on a centrally located recorder, and the popular Audograph portable dictation machine.

Jesse Jones Box Corp.

Booth C-27

The attractive exhibit planned for booth C-27 will probably bring to mind the journals and magazines you meant to keep for future reference which ended up dog-eared, dusty and finally discarded. Representatives here will suggest that those issues containing articles of lasting interest would not meet such an untimely fate if, instead of becoming scattered, there was a convenient means of keeping them orderly and readily accessible. The solution to be offered is the Jesse Jones Volume Files, available for all types of periodicals.

Miles Reproducer Company, Inc.

Booth D-25

Case histories, lectures, conferences, group therapy and dictation may now be recorded at a 60-foot radius with Walkie-Recordall, an eight pound self-powered recorder-transcriber. Operating in or out of the closed briefcase, indoors or outdoors, its Voice-Activated Self-Start-Stop feature automatically starts and stops the recording from microphone or telephone. While facilities for transcribing are available, transcription may be eliminated due to ease of handling the indexed recordings.

Precision Scientific Company

Booth A-35

The medical profession is now offered an inexpensive means of sterilizing with dry heat. Precision Scientific Company's new All-Purpose Sterilizer, designed especially for doctors and dentists, safely sterilizes instruments and needles without rusting or dulling and can also be used with oil or boiling water. The unit is small, compact and thermostatically controlled. Other apparatus to be shown includes centrifuges, sero-utility baths and Thelco incubators.

Walton Laboratories Incorporated

Booth D-22

The important topic of humidification will be discussed in booth D-22. The Walton Cold Steam Humidifiers to be shown are suitable for use in hospitals, residences and offices. In addition, they will show the newly developed Model WF especially designed for use with forced hot air furnaces. Qualified engineers will welcome your inquiries.

York Corporation

Booth E-15

The York Corporation will feature their new 1956 room air conditioner with reverse cycle heating as well as cooling. The modulation control of the Yorkaire Room Conditioner will be emphasized as "your personal comfort balancer." Information regarding the Yorkaire Year-round Residential Air Conditioner, for gas or oil heating as well as cooling of the entire home, will also be available.

PHARMACEUTICALS

Abbott Laboratories

Booths C-10, C-11

Abbott Laboratories will demonstrate the merits of its new non-caloric sweetener, Improved Sucaryl by serving Sucaryl-sweetened coffee, lemonade and cookies. Representatives tell us that with Improved Sucaryl one can sweeten to levels never before possible and still avoid aftertaste. Another new product to be exhibited is Tronothane (pramoxine hydrochloride), a unique topical anesthetic with a low index of sensitivity. Abbott will also display Erythrocin, an antibiotic which provides specific action against cocci infections with minimal risk of side effects; Selsun, for control of dandruff-producing seborrheic dermatitis; and various other specialities.

American Cyanamid Company Fine Chemicals Division

Booth C-18

On behalf of leading pharmaceutical manufacturers, the American Cyanamid Company will present up-to-the-minute facts about sulfa drugs. The triple sulfas (sulfadiazine, sulfamerazine and sulfamethazine) which continue to gain recognition as effective and well tolerated chemotherapy will be featured.

American Hospital Supply Corp.

Booth F-21

A display of Travert parenteral solutions to supply caloric requirements will occupy a place of importance in the American Hospital Supply exhibit. The new Baxter Flashball to simplify needle insertion and the Baxter R-48 and R-49 transfusion sets for rapid administration of blood under pressure will also be shown.

Ames Company, Inc.

Booth B-5

Ames representatives will be on hand to discuss Clinitest and Ictotest. They will call your attention to the fact that Clinitest, for urine-sugar analysis, is standardized to assure uniformly reliable results whenever and wherever a test is performed. Ictotest is a new specific and sensitive tablet test for detection of urine bilirubin as an aid to the diagnosis and management of jaundice and hepatitis.

Ayerst Laboratories

Booth C-19

Ayerst Laboratories cordially invite physicians to visit booth C-19. Their exhibit will feature Mysoline, an effective anti-convulsant for the treatment of epilepsy; Thiosulfil, a sulfonamide designed particularly for genito-urinary tract infections; and Premarin with Methyltestosterone, a combined steroid indicated for the relief of postpartum breast engorgement and the treatment of osteoporosis. Representatives will be pleased to discuss any Ayerst specialties of interest to you.

Bilhuber-Knoll Corp.

Booth F-19

Metrazol continues to hold the Bilhuber-Knoll spotlight as the subject of increased investigation. For the latest information concerning this effective analeptic, representatives ask you to visit their exhibit in F-19. They emphasize the importance of new data on dosage. The Bilhuber-Knoll medicinals, Bromural, Dilaudid and Theocalcin will be included in the display.

Brewer & Company, Inc.

Booth F-33

Among the many Brewer specialties to be featured are: Thesodate, the original enteric-coated tablet of theobromine sodium acetate; Sus-Phrine, subcutaneous long-acting epinephrine preparation; Amchlor, a 1 gm. enteric-coated tablet of ammonium chloride; Asteric, enteric-coated aspirin for use when large dosages are required; and Enkide, an enteric-coated tablet of potassium iodide. Vicin (vitamin C), Thibex (vitamin B-1) and the special Gel-Ets dosage form of Estrogenic Substance, Triasyn-B and Phobs (phenobarbital) will also be shown.

Burroughs Wellcome & Co. (U.S.A.), Inc.

Booth E-31

The extensive research facilities of B. W. & Co. dedicated to basic theoretical work as well as to the development of improved therapies, both here and in other countries, provide the keynote for the Burroughs Wellcome exhibit. Through such research B. W. & Co. has made notable advances related to leukemia, malaria, diabetes and diseases of the autonomic nervous system; and to antibiotic, muscle-relaxant, antihistaminic and antinauseant drugs. An informed staff at the booth will welcome the opportunity to discuss their products and latest developments with you

The Central Pharmacal Company

Booth A-28

Interest at the Central Pharmacal booth will center on the original triple-sulfa specialties offered to the medical profession, the Trisulfazine products. Three dosage forms, Palatabs, Syrup and Tablets, will be presented for your consideration. Your inquiries will be welcomed

Chilean Iodine Educational Bureau, Inc.

Booth D-24

Following its tradition of service in disseminating information on iodine, the Chilean Iodine Educational Bureau will display samples of many iodine products useful in the fields of medicine, surgery, nutrition and sanitation. Particular emphasis will be placed on the values of iodine in civil defense and other emergency conditions. Representatives will be glad to supply reprints and other informative material.

Ciba Pharmaceutical Products, Inc.

Booths C-3, C-5, C-7

The Ciba exhibit will feature Serpasil, a pure crystalline alkaloid of Rauwolfia. Its record of use as a tranquilizer in treating patients whose adjustment to life is complicated by anxiety, irritability and various psychoses is said to be extremely gratifying. Representatives will further explain that while patients are effectively calmed, proper adjustment of dosage should enable them to retain their drive and energy.

Davies, Rose & Company, Limited

Booth B-25

Davies, Rose & Company extend a cordial invitation to members of the A. M. A. to visit their booth. Although most physicians need no introduction to these outstanding cardiac therapies, Pil. Digitalis and Tablets Quinidine Sulfate, Natural, their representatives look forward to seeing you and renewing your acquaintance with the dependability of their laboratory productions.

Eaton Laboratories

Booth D-32

Tricofuron, a new specific for trichomonas vaginalis will be introduced by Eaton Laboratories. Tricofuron, to be presented in both suppository and powder forms, contains the trichomonacide Furoxone (furazolidone), a new nitrofuran which is also bactericidal to the secondary invaders. Data attesting to its effectiveness in the treatment of trichomonal vaginitis will be available.

E. Fougera and Company, Inc.
Booth D-15

E. Fougera & Company, Inc. and its Division, Varick Pharmacal Company, Inc., cordially invite physicians to discuss with professional service representatives at booth D-15 new preparations of importance to their every day practice. Descriptive literature and samples will be available.

Frost Laboratories, Inc.
Booth G-30

Physicians visiting G-30 will see their "old friends," Chlorazene Tablets, Powder and Aromatic Powder, manufactured now by Frost Laboratories. A standard for hot soaks, wet dressings, and for washing minor wounds and abrasions, the tablets may also be used as a deodorant in colostomy pouches. Representatives will welcome your request for samples and information on Chlorazene.

Geigy Pharmaceuticals
Booth A-20

A new barbiturate, Medomin (brand of heptobarbital), will be featured by Geigy Pharmaceuticals. Indicated for gentle hypnosis and reliable, sustained sedation, Medomin is chemically unique in that a 7-member ring is attached to the barbiturate structure. Butazolidin, well-known non-hormonal antiarthritic, and Tromexan, oral anticoagulant for prophylaxis and treatment of thromboembolic disorders, will provide additional points of interest.

Holland-Rantos Company, Inc.
Booth B-16

Doctors attending the Clinical Meeting are cordially invited to visit the Holland-Rantos booth. H-R representatives will welcome the opportunity to discuss latest laboratory and clinical data concerning the efficacy of Holland-Rantos pharmaceutical specialties.

Homemakers' Products Corporation
Booth E-2

The Pharmaceutical Division of Homemakers' Products Corporation will present an exhibit of the latest technical information on the rinsing of diapers and bed linen with Diaparene Chloride, emphasizing elimination of the cause of diaper rash. A non-volatile, well tolerated antiseptic, Diaparene Chloride is indicated in the prevention and treatment of ammonia dermatitis in both the infant and adult incontinent.

Lanpar Company
Booth E-10

The Texas-size Stetson in booth E-10 will identify the Lanpar Company exhibit. This Clinical Meeting will be the occasion for the premiere showing of their products in the East. Representatives will look forward to meeting you and answering inquiries about their products.

Lederle Laboratories Division
Booths B-1, B-3

Visitors will be cordially welcomed at Lederle Laboratories interesting exhibit on Achromycin tetracycline, a leading broad spectrum antibiotic. The display will highlight the twenty different dosage forms of Achromycin now available for oral, parenteral and topical use in children and adults. Large scale models of various parts of the human body will illustrate the Achromycin preparations most convenient and effective for the treatment and control of diseases affecting specific areas.

Eli Lilly and Company
Booths C-26, C-28

You are invited to drop by the Lilly booths C-26 and C-28 for information on recent therapeutic developments. Lilly people in attendance will be glad to have your comments and questions about their products.

McNeil Laboratories, Inc.
Booth B-7

Butisol Sodium, Syndrox Hydrochloride, Clistin Maleate, Butibel and Butiserpine are among those pharmaceutical preparations to be exhibited by McNeil Laboratories. Representatives attending McNeil's newly constructed exhibit extend a warm welcome to their many professional friends.

Merck & Co., Inc.
Booth D-29

The story of crystalline vitamin B_{12} will be dramatically presented in a Merck "living-proof" display. Effects of the vitamin are to be shown through the use of live algae, bacteria, rats and chickens. Charts dealing with clinical uses and physiologic aspects of the vitamin, along with a demonstration of radioactive B_{12} in rats, will emphasize additional points of interest.

The Wm. S. Merrell Company
Booth C-23

Two products of original Merrell research will share the Merrell spotlight: Tace, oral estrogen with the unique fat storage action; and Meratran, clinically different central stimulant for emotional fatigue and depression. Merrell representatives will welcome questions and discussion on these and other Merrell products. Descriptive literature, clinical reprints and samples will be available.

Irwin Neisler Company
Booth C-27

Organon, Inc.
Booth A-17

An important contribution to this Exposition will be found in booth A-17. Here, Organon's Symposium Theatre will feature continuous showings of three films on symposia of general interest held recently: *Symposium on Heparin* moderated by Dr. Irving S. Wright; *Symposium on Vascular Head Pain* moderated by Dr. Derek Denny-Brown; and *Symposium on Corticotropin Therapy* moderated by Dr. Philip S. Hench. Physicians interested in these topics will enjoy attending these showings.

Parke, Davis & Company
Booth E-30

Medical service members of Parke, Davis & Company will be in attendance at this Technical Exposition for consultation and discussion of their various products. You are most cordially invited to visit and discuss the specialties of interest to you.

The E. L. Patch Company
Booth A-7

At booth A-7 representatives of the E. L. Patch Company will be on hand to greet their friends in the medical profession and answer questions concerning Patch prescription products. Their exhibit will point out the merits of Kondremul, an Irish Moss-Mineral Oil emulsion; Alzinox (antacid) tablets and magma; and Glytheonate, the Patch brand of theophylline sodium glycinate.

Chas. Pfizer & Co., Inc.
Booths C-6, C-8

The Pfizer exhibit again will be in the spotlight with their discovery, Tetracyn (tetracycline), an important part of their presentation. Time-tested Terramycin and their exclusive, versatile Steraject parenteral dosage forms share this spotlight along with Bonamine, a fast acting, long lasting anti-emetic, and Sterane for effective corticosteroid therapy.

Pharmacia Laboratories, Inc.
Booth F-23

Pharmacia Laboratories, Inc. will introduce its new product, Pharmalax, a suppository with enema-like action. Pharmalax is offered as a simple, time-saving and comfortable method to cause defecation. Azulfidine, Pharmacia's Azo-compound of salicylic acid and sulfapyridine for the treatment of ulcerative colitis will also be shown. Literature and reprints of outstanding papers on both of these products will be available.

The Purdue Frederick Company
Booth G-31

The Purdue Frederick exhibit will feature Senokot, a non-bulk laxative. Representatives at the booth will tell you that Senokot is a rigidly standardized Cassia acutifolia pericarp preparation, incorporated in delicious chocolate flavored granules.

Riker Laboratories, Inc.
Booth C-14

A truly important step toward providing a solution to the total clinical problem of angina pectoris is exemplified in Riker Laboratories planned presentation of Pentoxylon. Combining the actions of Rauwiloid, the alseroxylon fraction of Rauwolfia serpentina, and of pentaerythritol tetranitrate (PETN), Pentoxylon is offered for more complete therapy in angina pectoris. Booth C-14 will have additional information.

A. H. Robins Company, Inc.
Booth A-26

Robins' new phenobarbital extended action tablets, Stental Extentabs, providing 10-12 hour sedation on single tablet dosage, and Ambar, incorporating methamphetamine and phenobarbital, for control of appetite, will be the featured attractions here. Ambar is available in both conventional tablet form and long-acting Extentabs. Another product to be shown is Robalate (dihydroxy aluminum aminoacetate), palatable antacid tablet indicated in the management of peptic ulcer and hyperacidity.

Sandoz Pharmaceuticals
Booth G-20

Schering Corporation
Booths B-10, B-12, B-14

Schering cordially invites physicians and guests to visit this exhibit on Meticorten (prednisone) and Meticortelone (prednisolone), its newest adrenocortical hormones. The exhibit will offer the latest clinical data on these important new antirheumatic and antiinflammatory agents, now available in a wide variety of dosage forms for more flexible individualized therapy.

G. D. Searle & Co.
Booth D-7

A warm welcome awaits visitors to the Searle booth where representatives will be happy to answer any questions regarding Searle research and products. Featured will be Banthine and Pro-Banthine, standards in anti-cholinergic therapy; Dramamine, for the prevention and treatment of motion sickness and other conditions characterized by nausea; and Metamucil, for "smoothage" treatment of constipation.

Sharp & Dohme
Booths A-2, A-4

The Sharp & Dohme display will present highlights in steroid therapy of endocrine disorders, collagen diseases, respiratory allergies, eye diseases and skin conditions. Particular attention will be directed to the merits of Deltra, Hydeltra and related adrenal cortical steroid preparations. Trained personnel will be pleased to discuss new dosage forms, new indications, and the latest clinical reports in this field.

Smith, Kline & French Laboratories
Booth B-18

Thorazine and its amazingly wide scope of clinical applications will provide the theme for SKF's exhibit. Representatives at the booth will have the latest information on phases of most interest to the practitioner. Your discussion of Thorazine and SKF's unique line of Spansule sustained release capsules is invited.

E. R. Squibb & Sons
Booths C-22, C-24

Manufacturing chemists to the medical profession since 1858, E. R. Squibb & Sons cordially invite you to visit their display at this 1955 Clinical Meeting. Their representatives look forward to discussing any questions you may have with regard to Squibb pharmaceuticals. They hope you will find time to drop by booths C-22 and C-24.

R. J. Strasenburgh Co.
Booth E-29

Of special interest in this year's exhibit plans of R. J. Strasenburgh Company is Skopolate, potent parasympatholytic for peptic ulcer. Notable too are Naprylate, for superficial fungus infections of the skin, and Raphetamine Phosphate, of particular value in psychogenic fatigue, depression and obesity.

Travenol Laboratories, Inc.
Booth A-25

Synthroid sodium (sodium levothyroxine) for the treatment of thyroid deficiencies will hold the spotlight in booth A-25. Now available as a pure, crystalline synthetic preparation, Synthroid sodium is uniform, tasteless and odorless. It will be shown in 0.05 mg., 0.1 mg. and 0.2 mg. scored tablets, equivalent to one-half, one and two grains of Thyroid U. S. P. respectively.

U. S. Vitamin Corporation
Booth B-29

A new vasophoric, Arlidin (brand of nylidrin Hcl) will make its bow in B-29. Representatives at the booth will tell you that this pharmacologically active sympathomimetic drug provides prolonged vasodilatation; increases cardiac output and peripheral blood flow; and is indicated in a wide range of disorders. Professional samples and literature on this product and on their nutritional specialties will be available.

Walgreen Drug Stores
Booth A-8

Welcome to Walgreen's—is your invitation to visit booth A-8. Representatives at the exhibit will show you their formula for Walgreen-filled prescriptions. They take professional knowledge, add 54 years of experience, blend in a good portion of the pharmacist's integrity—plus exact amounts of fine, fresh drugs—and mold together with utmost care.

Wallace Laboratories
Division of Carter Products, Inc.
Booth B-22

Miltown, a unique new tranquilizer, will make its premiere appearance at this exhibit. A product of original research by Wallace Laboratories, Miltown is unrelated to other ataraxics; controls anxiety and tension states; and relieves muscle spasm. Your comments and questions about Miltown will be welcomed.

Warner-Chilcott Laboratories
Booth D-10

A visit to the Warner-Chilcott booth is one to schedule in the interests of your cardiovascular patients. The company will feature two products cited as clinically tested and proven agents: one to help you prevent attacks of angina pectoris; the other, a potent drug to lower blood pressure and relieve hypertensive symptoms.

Westwood Pharmaceuticals
Booth F-22

Westwood will display Gentia-Jel, an effective gentian violet jelly you can prescribe for self application by the patient. Well-known Lowila Cake, a mild soapless skin cleanser in cake form, will again figure prominently in their exhibit. Samples and literature may be obtained on your request.

White Laboratories, Inc.
Booth E-28

A digitalis preparation of choice, Gitaligin will be the topic highlighted at booth E-28. White's representatives will appreciate the opportunity to discuss the clinical background and therapeutic merit of this and other outstanding products of their manufacture.

Winthrop-Stearns Inc.
Booth D-11

An important contribution to the Winthrop-Stearns exhibit will be the display of animated three dimensional, transparent models and translucent anatomic drawings illustrating: the circulatory system; a pregnant woman at term with triplets; and the biliary duct system. The prompt, powerful and easily controlled action of Levophed in treating shock due to myocardial infarction and other causes will be emphasized. Two other important products to be shown are: Demerol, powerful analgesic, spasmolytic and sedative; and Telepaque, well tolerated oral cholecystopaque medium.

Wyeth Laboratories
Booths B-6 and B-8

The emergence of two new products in the Wyeth limelight will distinguish the exhibit in booths B-6 and B-8. Equanil, unique anti-anxiety agent with muscle-relaxing properties, and Pen-Vee-Oral, an alkaline-soluble free-acid penicillin will share top honors. To continue in their established places of honor are Ansolysen, an effective oral agent for the management of hypertension, and Bicillin, a highly-insoluble long-acting penicillin compound.

PHYSICAL MEDICINE AND REHABILITATION

The Burdick Corporation
Booth D-13

The Burdick Corporation will exhibit their modern line of electromedical equipment. Features which will be of special interest are their new UT-1 Ultrasonic Therapy unit and their Direct-Recording Electrocardiograph. Doctors are invited to visit the Burdick exhibit for a first hand, visual introduction to this equipment in action.

The DeVilbiss Company
Booth E-27

The DeVilbiss Company cordially invites you to see its display of professional type atomizers, nebulizers and vaporizers. A new portable air compressor and continuous-flow nebulizers for intermittent as well as prolonged aerosol therapy will be highlighted. Its complete line of steam vaporizers ranging from one-hour to eight-hours operating time will also be shown.

J. H. Emerson Company
Booth A-23

Several developments of interest may be seen in booth A-23. Respirators, resuscitators and respiration assistors are to be among the devices demonstrated. Your attendance will be your ticket for a command performance.

H. G. Fischer & Co.
Booth D-33

An important advance in medical equipment will be characterized by Fischer's demonstration of their new ultrasonic therapy unit. Short wave diathermy equipment and a low voltage generator will add more emphasis to their treatment theme. To obtain excellent diagnostic radiographs in your own office, representatives will suggest their full-wave rectified x-ray machine incorporating the best of the unusual and ingenious features developed by Fischer.

Medco Products Co., Inc.
Booth D-30

Electrical muscle stimulation as a valuable form of rehabilitation therapy is the topic to be discussed in booth D-30. The Medcolator Stimulator, for the stimulation of innervated muscle or muscle groups ancillary to treatment by massage, provides the subject stimulus. Your inquiries will be welcomed.

Mine Safety Appliances Company
Booth E-17

The Mine Safety Appliances Company will present the new Pulmonary Ventilator incorporating improvements dictated by clinical experience. The instrument features a new exhalation valve and push-button control to permit the treatment of apnea should such occur from the "oxygen paradox" or other cause. Additional revised inhalational equipment to provide a broader range of therapy will be also shown.

Raytheon Manufacturing Company
Booth A-19

A new product of Raytheon's medical electronic laboratory, their unitized electrocardiograph, will occupy a prominent place in the Raytheon exhibit. The latest Microtherm microwave diathermy unit and the Micronaire electrostatic air-cleaner designed to aid asthma and allergy sufferers are to be included in the exhibit. Representatives hope you will plan on a visit to booth A-19.

SURGICAL INSTRUMENTS

Becton, Dickinson and Company
Booth D-16

Becton, Dickinson and Company cordially invite you to visit their featured display of Wilson Curved Finger Surgeons Gloves. Also on exhibit will be Multifit syringes, Yale needles, scalp vein infusion sets, Ace elastic bandages and allied products.

(Continued on advertising page 93)

ORGANIZATION SECTION

MEDICAL CIVIL DEFENSE CONFERENCE, NOV. 12-13

The sixth County Medical Societies Civil Defense Conference, to be held Nov. 12-13 at the Sherman Hotel, Chicago, is sponsored by the A. M. A. Council on National Defense. Dr. Frank F. Schade, Los Angeles, will preside as conference chairman and Dr. Harold S. Diehl, Minneapolis, Chairman of the Council, will welcome the conferees.

On Saturday morning Val Peterson, Federal Civil Defense Administrator, will discuss the current activities and future plans for civil defense preparedness at the national level. Dr. G. E. Fryer, Ottawa, Canada, will report on the medical civil defense plans in Canada; a similar report on health and medical plans of the Federal Civil Defense Administration will be presented by the director of the health office, Dr. John M. Whitney.

A workshop session on medical training and assignment, moderated by Dr. Max L. Lichter of Detroit, is also scheduled for Saturday morning, Nov. 12. The conferees will discuss at this session professional participation in civil defense, hospital participation, and volunteer participation. Saturday afternoon will be devoted to a panel entitled "Defenses and Effects of Nuclear Radiation."

Dr. Carroll P. Hungate, Kansas City, Mo., will moderate this panel discussion, which includes the following subjects and speakers: (1) the fall-out problem and types of radiation and their effects upon personnel, food, water, and soil—Brig. Gen. James P. Cooney, M. C., deputy surgeon general, Department of the Army; (2), nuclear radiation monitoring and decontamination—Simon Kinsman, Ph.D., chief, radiological health training section, Robert A. Taft Sanitary Engineering Center, Cincinnati; (3) known and observed genetic effects from nuclear radiation—H. J. Muller, Ph.D., professor, department of biology, University of Indiana, Bloomington; (4) research problems of genetic effects from nuclear radiation—Frank P. Hungate, Ph.D., biology section, General Electric Corporation, Hanford Atomic Products Operation, Richland, Wash.; (5) biological effects of nuclear radiation and current concepts of treatment and preventive measures—Eugene P. Cronkite, M.D., pathology division, Brookhaven National Laboratory, Upton, N. Y.

The entire second day will be devoted to a workshop on evacuation and dispersal. Dr. Tom Meador, Portland, Ore., will moderate the morning discussion, at which time the items to be covered will include (1) dispersal phase, consisting of mobilization of volunteers, en route medical care, evacuation of hospital patients, evacuation of medical supplies, and instructions to dispersees concerning radioactive fall-out; and (2) displacement phase, which includes medical care, communicable disease control, mass sanitation and supervision, specific sanitation problems, and work assignment. Dr. Harold C. Lueth, Evanston, Ill., will moderate the afternoon session on the operation phase, composed of such items as activity at assembly points, procurement and distribution of medical supplies, selecting sites for unit operation, problems of communication and transportation, care of casualties and their evacuation, and the integration of entire state's potential.

Following a summation of evacuation and dispersal by Dr. Stafford L. Warren, dean of the University of California Medical Center, the conference will adjourn.

The 200-bed improvised hospital will be on display in the Old Chicago Room of the Sherman Hotel during the two-day conference. This unit, designed by the Federal Civil Defense Administration, is a complete 200-bed hospital, transportable on a single tractor-trailer truck. It can be assembled in about four hours by about 30 professionals and auxiliaries. The administration has on hand 200 of these units, and 531 more are being assembled.

A dramatic feature will be a production, "45 Minutes . . . or Eternity," presented by a cast from the Woman's Auxiliary to the Chicago Medical Society. This civil defense play will be given in the auditorium of the American Medical Association headquarters on the evening of Nov. 12. The story of the play was written by Mrs. Delon A. Williams of the Woman's Auxiliary to the Jackson County Medical Society, Kansas City, Mo.

Additional information on this conference may be had from Mr. Frank W. Barton, Secretary, Council on National Defense, American Medical Association, 535 N. Dearborn St., Chicago 10.

BOOKLET ON RELATIONS BETWEEN DOCTORS AND HOSPITALS

Just off the press is a 16-page booklet entitled "Relation of Physicians and Hospitals," published by the A. M. A.'s Council on Medical Service. It contains (1) Guides for Conduct of Physicians in Relationships with Institutions (adopted by the House of Delegates in December, 1951), and (2) Report of the Joint Committee on Hospital-Physician Relationships of the Boards of Trustees of the American Medical Association and the American Hospital Association (adopted by the House of Delegates in June, 1953). Since the House of Delegates took the position that the 1953 report should be considered a supplement to the 1951 report, both statements constitute official A. M. A. policy on this subject and are reprinted in this edition. Medical societies, hospital staffs, and individual physicians may secure copies from the Council.

MEDICAL NEWS

CALIFORNIA

Dermatological Course for Practitioners.—The University of California Extension will offer a course on dermatology in general practice on Wednesdays, 2-4 p. m., Nov. 16-Dec. 21. Classes will be held in the conference room, Dermatology Ward, B-Ground-East, General Medical and Surgical Hospital, Veterans Administration Center, Sawtelle Boulevard near Wilshire Boulevard in Los Angeles. Application for enrollment should be addressed to Dr. Thomas H. Sternberg, Assistant Dean for Postgraduate Medical Education, Medical Extension, University of California, Los Angeles 24. Fee for the course is $30.

Personal.—Dr. Jean L. Lapeyre, Los Angeles, was recently honored at a party at the French Consulate, when the French Consul General bestowed on him the Cross of the Legion of Honour for his services to the French Hospital. Dr. Lapeyre has been practicing medicine in Los Angeles for 17 years.——Dr. Edward Kupka, Berkeley, has returned from his assignment as public health officer with the Foreign Operations Administration in Vietnam, Cambodia, and Laos to his position as chief, bureau of tuberculosis control, California State Department of Public Health.——Dr. J. Vernon Luck, associate clinical professor of orthopedic surgery at the University of Southern California School of Medicine, has been appointed medical director of the Orthopaedic Hospital of Los Angeles. He will head a staff of specialists in a center that includes the Orthopaedic Hospital and Clinic, a rehabilitation center, a cerebral palsy unit, and orthopedic research facilities.

COLORADO

State Medical Election.—Dr. Robert T. Porter, Greeley, was recently installed as president of the Colorado State Medical Society; Dr. George R. Buck, Denver, was chosen president-elect; and Dr. Leo W. Lloyd, Durango, vice-president.

DELAWARE

Society News.—The Delaware Psychiatric Society recently elected Dr. Jerome Kay, Wilmington, president; Dr. William A. Byrne, Wilmington, vice-president; and Dr. H. George de-Cherney, Farnhurst, secretary-treasurer.

Registry for Sickroom Loan Equipment.—The Wilmington Volunteer Bureau is pioneering a statewide clearing house on sickroom equipment, with headquarters at the Welfare Council of Delaware, which will supply information on availability to persons in need of a particular type of equipment, such as beds, crutches, wheel chairs, walkers, and basins. Another feature of this new service is the tabulation by the volunteer bureau staff and volunteers of requests for equipment presently unobtainable in the state, with a view toward purchase.

DISTRICT OF COLUMBIA

Morgan Portrait Presented to Society.—A portrait of the late Dr. William Gerry Morgan, past-president of both the American Medical Association and the Medical Society of the District of Columbia, was recently presented to the society by his daughter, Mrs. O. B. Hardison. The portrait is the work of the Washington artist, Bjorn Egeli.

Personal.—At the annual banquet, June 1, the Howard University Medical Alumni Association presented gifts and a plaque to Dr. Joseph L. Johnson, Washington, D. C., professor of physiology and former dean of the Howard University College of Medicine.——Dr. Reaumur S. Donnally, Washington, D. C., has been named advisory editor on medicine for the Encyclopedia Americana.

FLORIDA

University News.—The J. Hillis Miller Health Center of the University of Florida, Gainesville, has received a grant of $143,650 from the Commonwealth Fund of New York City, to support research studies in medical education and medical care in a university setting, prior to the opening of the College of Medicine and the College of Nursing in the fall of 1956.

Council on Aging.—At a meeting in Miami, the Florida Council on Aging was organized to promote scientific study of the aging process and foster the dissemination of knowledge on gerontology. Provision is made for affiliation with organizations of similar interest. Officers elected at the Miami meeting were president, Mr. Sidney Entman, Jacksonville; vice-president, Dr. Samuel Gertman, Miami; and secretary-treasurer, Prof. Irving L. Webber, Gainesville. Information may be obtained from Professor Webber, University of Florida, Gainesville.

GEORGIA

Dr. Howard Named Chairman of Surgery.—Dr. John M. Howard has been named chairman of the department of surgery and Joseph Brown Whitehead Professor of Surgery in the Emory University School of Medicine, Atlanta, filling the place vacated by the retirement of Dr. Daniel C. Elkin. During the Korean conflict Dr. Howard directed studies of battle casualties. He was formerly affiliated with his alma mater, the University of Pennsylvania School of Medicine, Philadelphia, and Baylor University College of Medicine, Houston, Texas. He is a consultant at Walter Reed Army Medical Center.

ILLINOIS

Lecture on Rheumatic Fever.—The west side branch of the Chicago Medical Society in cooperation with the Chicago Heart Association will present "Treatment and Prevention of Rheumatic Fever" by Dr. Joseph R. Christian, associate professor of pediatrics, Stritch School of Medicine of Loyola University, Nov. 9 at the Oak Park Arms Hotel (EUclid 6-4040), 408 S. Oak Park Ave., Oak Park. Dinner, 7 p. m., will be preceded by a fellowship hour. All physicians are welcome.

Chicago

Memorial Services for Dr. Speed.—Former students, associates, and friends are invited to attend memorial services for the late Dr. Kellogg Speed Oct. 30, 4 p. m., in Rush Medical Library, Presbyterian Hospital, 1753 W. Harrison St.

Hadassah Medical Program.—At the 41st annual convention of Hadassah, the Women's Zionist Organization of America, Oct. 30-Nov. 2 at the Morrison Hotel, the speakers will include: Dr. Kalman J. Mann, director general, Hadassah Medical Organization in Israel, and Dr. Harry Eagle, chief of experimental therapeutics, National Institutes of Health, Bethesda, Md.

Lectures on Cancer.—In its series of cancer lectures, Northwestern University Medical School will present the following programs, 5-6 p. m., in the auditorium of the Veterans Administration Research Hospital, 333 E. Huron St.:

Nov. 2, Present-Day Problems in Primary Lung Cancer, William E. Adams.
Nov. 9, Recovery from Radiation Injury, Leon O. Jacobson.
Nov. 16, Malignant Epithelial Tumors of the Extremities, Edwin A. Lawrence, Indianapolis.
Nov. 23, Role of Mutation in Relation to Origin of Tumors, Walter J. Burdette, Columbia, Mo.

Conference on Alcoholism.—The Greater Chicago Industry-Community Conference on Alcoholism will convene Nov. 1 at the LaSalle Hotel under the sponsorship of the Chicago Committee on Alcoholism, the Chicago Association of Commerce and Industry, and the A. M. A. Council on Industrial Health. Physicians participating will include Dr. Eugene L. Walsh, medical

---

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

director, International Harvester Company; Dr. Karl A. Meyer, director, Cook County Hospital; Dr. Daniel J. Feldman, Industrial Alcoholism Clinic, New York University; and Dr. Frank G. Norbury, Jacksonville, president, Illinois State Medical Society. The fee for the full-day conference, including luncheon, is $7.50. For information, contact the Chicago Committee on Alcoholism, 743 N. Wabash Ave., Chicago 11, MO. 4-5536.

Annual Lecture Series.—The Chicago Medical School (710 S. Wolcott Ave.) is presenting its seventh annual lecture series, "The Physician Looks at Social Problems," in Amphitheatre A on Tuesdays, 12:30 p. m., under the chairmanship of Dr. Piero F. Foa. The following programs have been scheduled for November:

Nov. 1, Euthanasia, Artificial Insemination and Sterilization, Edwin J. Holman, LL.B., A. M. A. Law Department.
Nov. 8, Responsibility and Crime, Wilber G. Katz, LL.B., University of Chicago.
Nov. 15, The Problems of Aging, Miss Elizabeth L. Breckinridge, Illinois Public Aid Commission.
Nov. 22, Juvenile Delinquency, Joseph D. Lohman, M.A., Sheriff of Cook County.
Nov. 29, International Social Aspects of Alcoholism, Robert M. Kark, University of Illinois College of Medicine.

Phi Delta Epsilon Lectures.—The Beta Tau chapter of the Phi Delta Epsilon fraternity at the Chicago Medical School will hold its sixth annual lectureship in the Kling Auditorium of Mount Sinai Hospital (2730 W. 15th Place) Oct. 31, 1 p. m., in honor of Dr. Harry C. Rolnick. The guest speaker, Dr. Wilder Penfield, director of the Montreal (Canada) Neurological Institute, will discuss "The Permanent Record of the Stream of Consciousness." The Alpha Beta chapter at Northwestern University Medical School will hold its seventh annual lectureship Nov. 1, 4 p. m., in honor of Dr. Carl A. Dragstedt, in Thorne Auditorium (Lake Shore Drive and Superior Street), where Dr. Penfield will discuss "Voluntary Movement—Some Observations on the Role of Centrencephalic Control." On Nov. 2 at 1 p. m. Dr. Penfield will deliver the seventh annual lectureship of the Alpha Alpha chapter at the University of Illinois College of Medicine (1853 W. Polk Street) in room 221 of the DMP Building, in honor of Dr. Francis E. Senear. His subject will be "Results of Treatment of Focal Epilepsy by Cortical Excision."

KENTUCKY

University News.—Dr. Frank Falkner, lecturer in child health, Hospital for Sick Children, London, and research assistant to that hospital, has been appointed assistant professor of child health, effective next January, at the University of Louisville School of Medicine. Dr. Falkner is also coordination officer to Centre Internationale de L'Enfance, Paris, France, for their coordinated growth studies, which are taking place in different countries but not, as yet, in any North American country. Dr. Falkner will set up a study on growth in Kentucky and will also keep his appointment in Paris.

Outbreak of Diphtheria.—According to the U. S. Public Health Service, an outbreak of diphtheria occurred in Meade County extending through the spring of 1955. For this period, 39 cases with 8 deaths were reported, an incidence rate of 3.9 per 100,000 population and a case fatality rate of about 20%. The responsible organism was of the gravis type. During the first phase of the epidemic, many school children were immunized. The department points out that conditions in the area surrounding Meade County are favorable for another outbreak of the disease and that with the reopening of schools this fall, an exacerbation of the epidemic is a possibility. Plans are being made by state and local health departments for a mass immunization program and for the detection and isolation of carriers.

MASSACHUSETTS

Scholarship Program for Latin Americans.—Graduate training in preventive medicine and public health will be offered doctors of medicine from Costa Rica, Guatemala, Honduras, and Panama, starting in 1956 under a scholarship program sponsored by the United Fruit Company at Harvard University School of Public Health, Boston. The scholarship awards will range from tuition to tuition plus maintenance and travel expenses, depending on individual needs. Cooperation between Harvard and the United Fruit Company in the interests of tropical health dates back to 1913 when the late Dr. Richard Pearson Strong organized a school of tropical medicine at Harvard and was named director of the laboratories and of research work of the United Fruit Company. Since then, members of the company's medical department have taught tropical medicine at Harvard and Harvard scientists have done research in Central America under company sponsorship. On completion of the year's training the scholarship fellows will be eligible for one of the following degrees: master of public health, master of science in hygiene, or master of industrial health. Two scholarships are being offered for the first year of the program. Scholarship applicants must return completed admission and scholarship applications to the Harvard School of Public Health by Jan. 1, 1956. Awards will be announced in March, 1956. Selection of scholarship holders will be made by the Harvard School of Public Health.

MONTANA

Meetings on School Health.—The committee on school health, Montana Medical Association, under the chairmanship of Dr. Ray O. Bjork, Butte, in cooperation with the state board of health, plans to conduct meetings on school health in the following communities in the western part of the state: Shelby, Oct. 31; Kalispell, Nov. 1; Missoula, Nov. 2; Butte, Nov. 3; and Helena, Nov. 4. Dr. Donald A. Dukelow, Chicago, Consultant in School Health of the Bureau of Health Education of the American Medical Association, will participate in each of these conferences.

NEW JERSEY

Course in Pediatric Advances.—Wednesday lectures (4-6 p. m.) covering advances in pediatrics will be inaugurated at Seton Hall College of Medicine and Dentistry, Newark, Nov. 2. The lectures will be given at Martland Medical Center Nurses' Lecture Hall, 116 Fairmount Ave. The fee of $25 for 18 lectures is made possible by a grant from the Bureau of Maternal and Child Health of the state department of health. The course gives special emphasis to preventive as well as to pathogenic and therapeutic aspects. A group of distinguished lecturers has been secured.

NEW YORK

Course on Pulmonary Tuberculosis.—A free postgraduate course in "The Management of Pulmonary Tuberculosis" will be given under the sponsorship of the State University of New York College of Medicine at New York City, Brooklyn, the Brooklyn Tuberculosis and Health Association, and the Brooklyn Academy of General Practitioners at Kings County Hospital, "E" Building Auditorium, Nov. 3, 10, and 17. The course, to be given under the auspices of the postgraduate education committee of the Medical Society of the County of Kings, has been endorsed for credit by the Academy of General Practice.

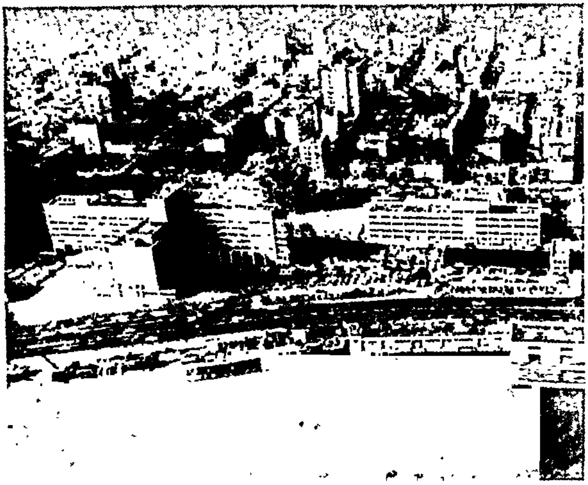
Name Professor of Surgery.—Dr. W. J. Merle Scott has been appointed chairman of the department of surgery at the University of Rochester School of Medicine and Dentistry and surgeon-in-chief of Strong Memorial-Rochester Municipal Hospitals, to succeed Dr. John J. Morton Jr., a member of the original medical staff of Strong Memorial in 1926, who became professor emeritus in October, 1953, and who has since served as professor of surgery pro tem and surgeon-in-chief pro tem. Dr. Scott was visiting professor of surgery at Harvard Medical School and visiting chief surgeon at Peter Bent Brigham Hospital, Boston, in 1940. He was president of the Rochester Academy of Medicine, 1941-1942. He is consultant in surgery at Genesee and Highland hospitals, Rochester, and the Frederick Ferris Thompson Memorial Hospital in Canandaigua.

New York City

Dr. Amberson Retires from Hospital and Teaching Posts.—Dr. J. Burns Amberson Jr., former president of the National Tuberculosis Association and a Trudeau medalist, retired July 1 as visiting physician in charge of chest service, Bellevue Hospital; attending physician, Presbyterian Hospital; and professor of medicine, Columbia University College of Physicians and Surgeons. He plans to continue to be active in consultation and investigation. Dr. Amberson has been appointed consultant in Bellevue and Presbyterian hospitals and has been named professor emeritus of medicine at Columbia.

Course in Physical Rehabilitation Methods.—New York University-Bellevue Medical Center has announced its advanced course in physical rehabilitation methods for physical therapists, which will be given at the Institute of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center, in conjunction with the New York University School of Education, Nov. 21-Dec. 16, Feb. 6-March 2, 1956, and April 30-May 25. The new fees are: tuition, $100 ($25 per point); university fee, $5 (nonreturnable); and student activity fee, $2. Qualified veterans may enroll in the course under the provision of P. L. 346 or P. L. 16. Applications may be submitted to Mrs. Edith Buchwald Lawton, Director of Rehabilitation Courses for Physical Therapists, Institute of Physical Medicine and Rehabilitation, 400 E. 34th St., New York 16.

Medical Science Building Dedicated.—The new Medical Science Building of New York University–Bellevue Medical Center (550 First Ave.) was formally dedicated June 2. Adlai Stevenson of Libertyville, Ill., former governor of Illinois, gave the principal address. The Medical Science Building, opened in the fall of 1954, is part of a projected 32 million dollar construction program. It is six stories high and has 500 rooms. Erected at a cost of about 10 million dollars, the building provides classrooms and laboratories for all departments of the center's college of medicine and postgraduate medical school. The Medical Center Library and the newly inaugurated Library on Man's Place in Nature, located on three floors of the teaching wing, provide space for 120,000 volumes. Adjoining the Medical Science Building is the Henry W. and Albert A. Berg Institute for Experimental Physiology, Surgery and Pathology, which was placed in operation concurrently with the opening of the Medical Science Building.



New York University-Bellevue Medical Center showing Medical Science Building at left and Institute of Physical Medicine and Rehabilitation at right.

OKLAHOMA

Founders' Day Clinic.—The third annual Founders' Day Clinic of the Tulsa County Medical Society will be held Nov. 9-10 under the sponsorship of the Tulsa County Medical Society in cooperation with the Tulsa Academy of General Practice, the Oklahoma division of the American Cancer Society, the Tulsa County Heart Association, and the eastern Oklahoma chapter of the Arthritis and Rheumatism Foundation. The guest speakers will include: Dr. John W. Kirklin, professor of surgery, Mayo Clinic Foundation, Rochester, Minn.; Dr. Charles L. Martin, professor of radiology, Southwestern Medical School of the University of Texas, Dallas; Dr. L. Maxwell Lockie, professor of medicine, University of Buffalo (N. Y.) School of Medicine; Dr. William C. Baum, associate professor of urology, University of Michigan Medical School, Ann Arbor. The clinic will open Wednesday at 6:30 p. m. at The Mayo with a dinner meeting. Dr. Kirklin, the principal speaker of the evening, will demonstrate the use of the mechanical pump oxygenator system for intracardiac surgery. The Thursday session will be held at the Blue Cross-Blue Shield Building auditorium. Except for the purchase of meals, there will be no charge for the clinic, which has been approved for postgraduate credit by the Oklahoma Academy of General Practice.

SOUTH CAROLINA

Founders' Day.—The Medical College of South Carolina, Charleston, will observe Founders' Day Nov. 3. The following program will be presented in the Baruch Auditorium at 8:30 a. m.:

Some Obstetrical Complications: Their Management of Yesterday and Today, Charles H. Mauzy Jr., Winston-Salem, N. C.
Some Interesting Pediatric Diagnostic Problems, Amos Christie, Nashville, Tenn.
Endocrine Madness, Eugene A. Stead Jr., Durham, N. C.
Management of Extremities with Arterial Insufficiency, William H. Moretz, Augusta, Ga.

The medical college luncheon, 2 p. m., will be followed by a summary of research in progress. Founders' Day will be preceded by a postgraduate seminar Nov. 1-2, which will include a symposium on rheumatic fever Wednesday afternoon. There will be a buffet supper and round-table discussion at 7 p. m.

WASHINGTON

State Medical Election.—Officers of the Washington State Medical Association include: Dr. Irvia C. Munger Jr., Vancouver, president; Dr. James H. Berge, Seattle, president-elect; Dr. Willard B. Rew, Yakima, vice-president; and Dr. Frederick A. Tucker, Seattle, secretary-treasurer.

WISCONSIN

Orthopedic Field Clinics.—The bureau for handicapped children, state department of public instruction, announces the following schedule for orthopedic field clinics: Rhinelander, Nov. 2-3; Fond du Lac, Nov. 18; Appleton, Dec. 1-2; and Chippewa Falls, Dec. 8-9. The clinics are conducted for persons under 21 years of age who come within the state's definition of crippled children. It is preferred that referral be made by the family physician, but, when this is not feasible, arrangements may be made by writing to the bureau. Inquiries should be addressed to the Bureau for Handicapped Children, 146 North, State Capitol, Madison 2.

HAWAII

Hospital News.—Young physicians from eight nations including the United States, Canada, Mexico, Portugal, Turkey, Formosa, the Philippine Islands, and Japan have chosen Hawaii for their internships and residencies.

Orthopedic Meeting in Honolulu.—The 19th annual meeting of the Western Orthopedic Association will convene at the Reef Hotel, Honolulu, Nov. 6-10, under the presidency of Dr. J. Warren White, Honolulu. The sessions will open Monday at 8:30 a. m. with greetings from Dr. John W. Cooper, Honolulu, president, Hawaii chapter. At a breakfast round-table meeting Tuesday, a low-back symposium will be presented by Drs. Joseph C. Risser, Pasadena, Calif., Robert L. Garrett, Vallejo, Calif., and (by invitation) Dr. M. Beckett Howorth, Stamford, Conn. A residents' program will be offered Tuesday morning by Drs. Sherman S. Coleman, Salt Lake City; Ralph Pietrobono, Oakland, Calif.; Walter J. Treanor, San Francisco; and L. W. Wiseman, Los Angeles; all by invitation. At the breakfast round-table meeting Wednesday, a symposium on hip endoprostheses will be presented by Dr. Edward L. Compere, Chicago (by invitation); Dr. Milton Greengard, Richmond, Calif.; and Dr. Roger Anderson, Seattle. Thursday at 2:30 p. m. there will be a guided tour through Tripler Army Hospital. Social activities will include a welcoming party at the Princess Kaiulani Hotel Sunday, 6-8 p. m.; a luau (native feast) at the Queen's Surf Monday; a fashion show-luncheon at the Halekulani Hotel Tuesday; and a no-host cocktail gathering at the Reef Hotel preceding the formal banquet-dance.

GENERAL

Decrease in Blindness.—According to the executive director of the National Society for the Prevention of Blindness, blindness due to venereal disease has decreased 40% since 1940; however, venereal disease is still a major cause of blindness in the United States, at present responsible for 5 to 9% of blindness in this country.

Health Problems of the Traveling Public.—The first International Symposium on Health and Travel was held at the Waldorf-Astoria, New York, June 23. Among the participants were Drs. Walter Alvarez, Chicago; Jacques M. May, New York; Gaetan Jasmin, Montreal, Canada; I. Newton Kugelmass, New York; and Major Herman I. Chinn. Dr. Félix Martí-Ibáñez, New York, was chairman.

Meeting on Sterility.—The annual meeting of the Western Society for the Study of Sterility will be held in Palm Springs, Calif., Nov. 4-6. Attendance is open to all physicians and those in allied fields. Dr. Alan F. Guttmacher, New York, will be guest speaker. Advance registration (fee $10 for nonmembers) may be made by writing to Dr. Edward T. Tyler, Secretary-Treasurer, 10911 Weyburn Ave., Los Angeles 24.

Meeting of Clinical and Climatological Association.—The 68th meeting of the American Clinical and Climatological Association will be held at the Homestead, Hot Springs, Va., Oct. 31-Nov. 2, under the presidency of Dr. Henry M. Thomas Jr., Baltimore. The Gordon Wilson Lecture, "Observations on Certain Viruses Causing Exanthematous Diseases in Man, with Particular Reference to the Agent in Measles," will be delivered Tuesday noon by John F. Enders, Ph.D., Boston.

Meeting on Mental Health.—The annual meeting of the National Association for Mental Health will convene at the Sheraton-Lincoln Hotel, Indianapolis, Nov. 3-6. Among the participants will be Dr. Paul V. Lemkau, New York City Community Mental Health Board, Dr. John Benjamin, University of Colorado, Denver, and Miss Jane Stafford, health and medicine editor, *Science Service*. Topics for discussion will include programing in mental health, public relations, and educational activities for mental health associations. The annual banquet will have as speaker the Hon. Luther A. Youngdahl, former governor of Minnesota.

Osborne and Mendel Award.—The Osborne and Mendel award for 1955, administered by the American Institute of Nutrition, was given to Elmer V. McCollum, Ph.D., professor emeritus of biochemistry at the Johns Hopkins University School of Medicine, Baltimore, at the annual dinner of the institute in the Palace Hotel, San Francisco, April 13. The award consists of $1,000 and a scroll with the following wording: "To Elmer Verner McCollum, Ph.D., Sc.D., LL.D., in recognition of his outstanding discoveries concerning vitamins and mineral nutrients, and his numerous other distinguished contributions to the science of nutrition."

Meeting on Tropical Medicine.—The fourth annual meeting of the American Society of Tropical Medicine and Hygiene will convene at the Somerset Hotel, Boston, Nov. 2-5, under the presidency of William H. Taliaferro, Ph.D., Chicago. The 20th annual Charles Franklin Craig Lecture, "The Confusing Epidemiology of Malaria in California," will be delivered at 9 a. m. Thursday by Harold F. Gray, Gr.P.H., Oroville, Calif. A symposium, "Newer Knowledge of Viral and Rickettsial Diseases," is scheduled for Thursday afternoon. The presidential address, "The Functions of the Spleen in Immunity," will be delivered at the dinner session Friday, 7 p. m.

Meeting of Inhalation Therapists.—The annual institute of the American Association of Inhalation Therapists will be held Nov. 7-11 at the Hotel St. Clair, 162 E. Ohio St., Chicago. Tuesday morning Dr. George A. Saxton Jr., Chicago, will consider "Inhalation Problems in the Polio Patient," and at a luncheon round table he will present "Resuscitation Do's and Don'ts," with Dr. Max S. Sadove, Chicago. On Wednesday morning "Humidity in Inhalation Therapy" by Drs. Albert H. Andrews Jr. and Edwin R. Levin, Chicago, will be followed by "Special Problems of the Patient with a Tracheotomy" by Dr. Andrews. "The Problem of the Patient in Shock—Postoperative and Traumatic" will be given by Dr. Paul W. Searles, Chicago, at a luncheon round-table presentation. The afternoon session on the place of audiovisual education in oxygen therapy will consist of film presentations. At the Thursday luncheon round-table presentation, "Low Volume Oxygen Therapy" will be described by Dr. Andrews. Topics for Friday include: "Recent Developments in Pressure Breathing," "Mask Therapy," and "Oxygen Tents."

Annual Session of Medical Clinics.—The American Association of Medical Clinics will hold its sixth annual session at the Curtis Hotel, Minneapolis, Nov. 4-6, under the presidency of Dr. James C. Thomas Rogers, Urbana, Ill. The program will open at 9:30 a. m. Saturday with "Advantages and Disadvantages of a Clinic Owning Its Hospital" by Dr. Gerald W. Hunter, Fargo, N. D., and Dr. David W. McCarty, Longmont, Colo., after which a joint survey of group practice will be presented by Mr. George Cooley, associate secretary, Council on Medical Service, American Medical Association, Chicago. Workshops will precede luncheon. The Sunday session will open with a panel on extension of insurance coverage for ambulatory patients in clinics by Blue Shield and other insurance carriers. "Postgraduate Education Provided by Clinics" will be presented at 10:30 a. m. by Dr. Bernard A. Watson, Clifton Springs, N. Y.; Dr. Edwin P. Jordan, Charlottesville, Va., executive director of the association; and a speaker to be announced. A discussion, "How Can Clinics Improve Their Activities in Preventive Medicine and Health Education," will be offered by Drs. Olga S. Hanson, Minneapolis; C. B. Esselstyn, Hudson, N. Y.; and Freeman L. Rawson, Knoxville, Tenn., before luncheon. The Sunday afternoon session will open with "Investigative Activities in Clinics—What Policies Can Be Adopted to Give Staff Members Time for Such Endeavors?" by Dr. Russel V. Lee, Palo Alto, Calif., and will close with "Effect of Recent Rulings and Decisions on Retirement Income Programs for Clinic Personnel" by Mr. Leland Scott, Minneapolis, and Dr. Arthur R. Kintner, Missoula, Mont.

Meetings on Clinical Research.—The Central Society for Clinical Research will hold its 28th annual meeting at the Drake Hotel, Chicago, Nov. 4-5. The presidential address will be delivered Friday morning by Dr. Clayton G. Loosli, Chicago. In all, 36 presentations will be made, and 45 speakers will participate by invitation. The sessions will open with "Intraesophageal Pressures in Diffuse Spasm of the Esophagus" by Drs. Brian Creamer (by invitation), F. Edmund Donoghue (by invitation), and Charles F. Code, Rochester, Minn. The closing paper will be "Secondary Aldosteronism. 1. The Metabolic and Adrenocortical Responses of Normal Men to High Environmental Temperatures" by Dr. David H. P. Streeten (by invitation), Dr. Jerome W. Conn, Lawrence H. Louis, Sc.D. (by invitation), Dr. Stefan S. Fajans, Dr. Holbrooke S. Seltzer (by invitation), Dr. Robert D. Johnson (by invitation), Dr. Robert D. Gittler (by invitation), and Dr. Arthur H. Dube (by invitation), Ann Arbor, Mich.——The midwestern section of the American Federation for Clinical Research will hold its 13th annual meeting at Thorne Hall, Northwestern University, Lake Shore Drive at Superior Street, Chicago, Nov. 3. The 26 presentations will include participation by 38 invited speakers. The federation announces that five copies of abstracts (limited to 300 words) for the meeting of its southern section at the Jung Hotel, New Orleans, Jan. 20, 1956, should be sent to Dr. John H. Moyer, 1200 M. D. Anderson Blvd., Houston, Texas, before Nov. 15, and five copies of abstracts for the western section meeting at the Golden Bough Theater, Carmel, Calif., Jan. 26, should be sent before Nov. 15 to Dr. Belding H. Scribner, Veterans Administration Hospital, Seattle 8.

Society News.—Newly elected officers of the **New England Roentgen Ray Society** include: Dr. Max Ritvo, Boston, president; Dr. Arthur B. Soule Jr., Burlington, Vt., vice-president; Dr. Magnus I. Smedal, Boston, treasurer; and Dr. Raymond A. Dillon, Lynn, Mass., secretary.——The **American Association of Neuropathologists** recently elected Dr. Webb E. Haymaker, Washington, D. C., president; Dr. Ben Lichtenstein, Chicago, vice-president; and Dr. Leon Roizin, New York, secretary-treasurer.——The **American Neurological Association** recently elected Dr. Johannes M. Nielsen, Los Angeles, president; Dr. H. Houston Merritt, New York, president-elect; Drs. James W. Kernohan, Rochester, Minn., and Robert B. Aird, San Francisco, vice-presidents; Dr. Charles Rupp, Philadelphia, secretary-treasurer; and Dr. William F. Caveness, New York, assistant secretary.——Pursuant to a poll of professors of preventive medicine, the **Conference of Professors of Preventive Medicine** was recently reorganized as the **Association of Teachers of Preventive Medicine.** The following slate of officers was elected by unanimous vote: Dr. Duncan W. Clark, Brooklyn, N. Y., president; Dr. Robert K. Shank, St. Louis, vice-president; Dr. John J. Phair, Cincinnati, secretary-treasurer; and J. Garth Johnson, Ph.D., Albany, N. Y., editor of the association's newsletter.——The **American Pediatric Society** recently elected Dr. Allan M. Butler, Boston, president; Dr. Bruce Chown, Winnipeg, Manitoba, Canada, vice-president; and Dr. Aims C. McGuinness, Washington, D. C., secretary-treasurer.——The **American Ophthalmological Society** recently elected Dr. Alan C. Woods, Baltimore, president; Dr. Frederick C. Cordes, San Francisco, vice-president; and Dr. Maynard C. Wheeler, New York, secretary-treasurer.

CANADA

Louis Gross Memorial Lecture.—"The Clinical Importance of the Physiology of Temperature Regulation," the 18th annual Louis Gross Memorial Lecture, under the auspices of the Montreal Clinical Society, will be given by Alan C. Burton, Ph.D., professor of biophysics, University of Western Ontario Faculty of Medicine, London, England, Nov. 1, in the auditorium of the nurses' residence of the Jewish General Hospital, Montreal. The meeting will be a feature of the annual fall convention of the Montreal Medico-Chirurgical Society.

LATIN AMERICA

Medical Congress.—An International General Medical Congress will be held at the University of Rosario Medical College, Rosario, Argentina, Nov. 7-12. A 30 day all-expense tour ($960) offered from Miami, Fla., Nov. 4, includes Río de Janeiro, São Paulo, Santos, Montevideo, Buenos Aires, Rosario, Port of Spain, and Caracas; departure from Caracas for Miami is on Dec. 3. Information may be obtained from Ed. Morgens, Cas. Correo 4043, Buenos Aires, Argentina.

Society News.—The Pan American Medical Association will hold its next Inter-American Congress in Mexico City, March 25-31, 1957. The association, which has 42 medical sections, including the new section of general practice, is planning an extensive scientific session for the first four days in Mexico City, followed by three days of sightseeing, with visits to Cuernavaca, Taxco, and Acapulco, after which medical meetings will be held for two days in Guatemala City, Guatemala, in conjunction with the local chapter. The executive director of the association is Dr. Joseph J. Eller, 745 Fifth Ave., New York.

FOREIGN

London Medical Exhibition.—The annual medical exhibition at London will be held Nov. 14-18 at the New Hall of the Royal Horticultural Society at Westminster. The exhibit will include equipment, surgical instruments, and a wide variety of new medical films. Professional men may obtain official invitations from the organizer, the British & Colonial Druggist, Ltd., 194-200, Bishopsgate, London, E. C. 2., England.

International Society of Plastic Surgery.—An international society of plastic surgeons was formed at the first International Congress of Plastic Surgery in Stockholm and Uppsala Aug. 1-5 (The Journal, July 30, 1955, page 1180). Nearly 400 plastic surgeons from 41 countries participated in the congress. The following officers were elected: honorary president, Sir Harold Gillies, England; general secretary, Tord Skoog, Sweden; and treasurer, Karl-Erik Hogeman, Sweden. Dr. Truman G. Blocker Jr., Galveston, Texas, was appointed a member of the executive committee.

EXAMINATIONS AND LICENSURE

EXAMINING BOARDS IN SPECIALTIES

American board of Internal Medicine: *Oral.* Chicago, Nov. 30-Dec. 1. *Subspecialties. Cardiovascular Disease.* Chicago, Nov. 30. The closing date for acceptance of application for gastroenterology was Feb. 1, and for cardiovascular disease the closing date was June 1. Exec. Sec., Dr. William A. Werrell, 1 West Main St., Madison 3, Wis.

American Board of Neurological Surgery: *Oral.* New Haven, November. Oral examinations given in Spring and Fall. Final date for filing application for the Spring examination was October 1; for the Fall examination April 1. Sec., Dr. Leonard T. Furlow, Washington University School of Medicine, St. Louis 10.

American Board of Obstetrics and Gynecology: *Written Examination and submission of Case Reports. Part I.* Various locations in United States and Canada, and military centers outside of the Continental United States, Feb 3, 1956. Final date for filing application was Oct. 1. *Oral and Pathological Examinations. Part II.* Chicago, May 11-20, 1956. Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

American Board of Ophthalmology: *Written.* January 24-26, 1956. *Practical Examination.* San Francisco, June 18-21, St. Louis, Oct. 20-25. Applications for 1957 written examination must be filed before July 1, 1956. Sec., Dr. Merrill J. King, Box 236, Cape Cottage Branch, Portland 9, Maine.

American Board of Orthopaedic Surgery: *Oral.* Jan. 26-27. Final date for filing application was Aug. 15. *Part I. Oral and written.* Various centers, April 1956. Final date for filing application is Nov. 30. Sec., Dr. Harold A. Sofield, 116 South Michigan Ave., Chicago 3.

American Board of Pediatrics: *Oral.* Washington, D. C., Dec. 2-4. Admin. Sec., Mrs. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

American Board of Physical Medicine and Rehabilitation. *Parts I and II.* Chicago, June 16-17. Sec., Dr. Earl C. Elkins, 200 First St., S. W., Rochester, Minn.

American Board of Preventive Medicine: *Certification in Public Health.* Kansas City, Mo., Nov. 10-12. Sec.-Treas., Dr. Ernest L. Stebbins, 615 N. Wolfe St., Baltimore 5.

American Board of Psychiatry and Neurology: New York City, December, Philadelphia, April 16-18, 1956. Sec., Dr. David A. Boyd, 102-110 Second Ave. S.W., Rochester, Minn.

American Board of Radiology: Chicago, Dec. 4. Final date for filing applications for the fall examination was July 1. Candidates who will complete their training by Dec. 31 will be eligible to appear for this examination. Deadline for filing applications for the Spring 1956 examination is Jan. 1. Those candidates who will complete their training by June 30, will be eligible to appear at this examination. Sec., Dr. B. R. Kirklin, Kahler Hotel Bldg., Rochester, Minn.

American Board of Surgery: *Part I.* Centers throughout the United States, in Europe and in the Far East, March 28. Closing date for the March examination is December 1. *Part II.* New York City, Nov. 14-15; St. Louis, Dec. 12-13; New Orleans, Jan. 16-17; Los Angeles, Feb. 13-14; San Francisco, Feb. 16-17; Durham, March 12-13; Boston, May 14-15 and Philadelphia, June 4-5. Sec., Dr. John B. Flick, 255 S. Fifteenth St., Philadelphia 2.

Board of Thoracic Surgery. *Written.* February 1956. Closing date for filing application is Dec. 1. Sec., Dr. William M. Tuttle, 1151 Taylor Ave., Detroit 2, Mich.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1955 Clinical Meeting, Boston, Nov. 29-Dec. 2.

1956 Annual Meeting, Chicago, June 11-15.

1956 Clinical Meeting, Seattle, Nov. 27-30.

1957 Annual Meeting, New York, June 3-7.

National Medical Public Relations Conference, Hotel Statler, Boston, Nov. 28. Mr. Leo F. Brown, 535 N. Dearborn St., Chicago 10, Director.

American Academy of Dermatology and Syphilology, Palmer House, Chicago, Dec. 3-8. Dr. James R. Webster, 55 East Washington St., Chicago 2, Secretary.

American Academy of Obstetrics and Gynecology, Conrad Hilton Hotel, Chicago, Dec. 13. Dr. C. Paul Hodgkinson, 116 South Michigan Blvd., Chicago, Secretary.

American Association of Blood Banks, Palmer House, Chicago, Nov. 19-21. Miss Marjorie Saunders, 3707 Gaston Ave., Dallas 10, Texas, Secretary.

American Association of Medical Clinics, Curtis Hotel, Minneapolis, Nov. 4-6. Dr. Edwin P. Jordan, Box 58, Charlottesville, Va., Executive Director.

American Clinical and Climatological Association, The Homestead, Hot Springs, Va., Oct. 31-Nov. 2. Dr. M. N. Fulton, 124 Waterman St., Providence 6, R. I., Secretary.

American College of Anesthesiologists, Hotel Statler, Boston, Nov. 4-5. Mr. John H. Hunt, 188 West Randolph St., Chicago 1, Executive Secretary.

American College of Cardiology Interim Meeting, Hotel Claridge, Memphis, Tenn., Nov. 10-12. Dr. Philip Reichert, Empire State Bldg., New York 1, Secretary.

American College of Preventive Medicine, Kansas City, Mo., Nov. 16-17. Dr. T. Paul Haney, 521 North Boulder St., Tulsa, Okla., Secretary.

American College of Surgeons, Conrad-Hilton Hotel, Chicago, Oct. 31-Nov. 4. Dr. Michael L. Mason, 40 East Erie St., Chicago 11, Secretary.

American League Against Epilepsy, Roosevelt Hotel, New York, Dec. 8. Dr. Peter Kellaway, Baylor University College of Medicine, Houston 25, Tex., Secretary.

American Medical Women's Association, Board Meeting, Netherlands-Plaza Hotel, Cincinnati, Nov. 11-13. Miss Lillian T. Majally, 1790 Broadway, New York 19, Executive Secretary.

American Public Health Association, Muehlebach Hotel and Municipal Auditorium, Kansas City, Mo., Nov. 14-18. Dr. Reginald M. Atwater, 1790 Broadway, New York 19, Executive Secretary.

American School Health Association, Hotel President, Kansas City, Mo., Nov. 14-18. Dr. A. O. DeWeese, 515 East Main St., Kent, Ohio, Secretary.

American Society of Anesthesiologists, Hotel Statler, Boston, Oct. 29-Nov. 3. Dr. J. Earl Remlinger Jr., Room 1101, 188 W. Randolph St., Chicago 1, Secretary.

American Society for the Study of Arteriosclerosis, Hotel Sheraton, Chicago, Nov. 6-7. Dr. O. J. Pollak, P.O. Box 228, Dover, Del., Secretary.

American Society of Tropical Medicine and Hygiene, Somerset Hotel, Boston, Nov. 2-5. Dr. John E. Larsh Jr., Dept. of Parasitology, School of Public Health, Chapel Hill, N. C., Secretary.

Association of Military Surgeons of the U. S., Hotel Statler, Washington, D. C., Nov. 7-9. Colonel Robert E. Bitner, 1726 I St. N.W., Washington 6, D. C., Secretary.

Association for Research in Nervous and Mental Diseases, Hotel Roosevelt, New York, Dec. 9-10. Dr. Clarence C. Hare, 710 West 168th St., New York 32, Secretary.

Association of State and Territorial Health Officers, Hotel Washington, Washington, D. C., Nov. 6-12. Dr. Franklin D. Yoder, State Board of Health, Cheyenne, Wyo., Secretary.

Central Society for Clinical Research, Drake Hotel, Chicago, Nov. 4-5. Dr. Robert H. Ebert, 950 East 59th St., Chicago 37, Secretary.

Eastern Section, American Federation for Clinical Research, Hotel Warwick and College of Physician's Building, Philadelphia, Dec. 2-3. Dr. Charles R. Shuman, Temple Univ. Hospital, Broad and Ontario Sts., Philadelphia 40, Chairman.

Inter-Society Cytology Council, Statler Hotel, Cleveland, Nov. 11-12. Dr. Paul F. Fletcher, 634 N. Grand Blvd., St. Louis 3, Secretary.

Interstate Post Graduate Medical Association of North America, Municipal Auditorium, Milwaukee, Nov. 14-17. Mr. Roy T. Ragatz, 207 Gay Bldg., Madison 3, Wis., Executive Director.

Medical Society Executives Conference, Parker House, Boston, Nov. 27. Mr. H. Martin Baker, 1102 South Hillside, Witchita 17, Kansas, Secretary.

Midwestern Section of American Federation for Clinical Research, Thorne Hall, Northwestern University, and Drake Hotel, Chicago, Nov. 3. Dr. Robert J. Glaser, Barnes Hospital, St. Louis 10, Secretary.

National Association for Mental Health, Indianapolis, Nov. 4-6. Mr. Robert M. Heininger, 1790 Broadway, New York 19, Director.

New England Health Education Association, Boston, Dec. 2. Miss Wyntha Tompkins, Middlesex Health Association, Essex, Mass., Secretary.

Puerto Rico Medical Association, Santurce, Dec. 7-11. Dr. Luis R. Guzman-Lopez, Box 9111, Santurce, Secretary.

Radiological Society of North America, Palmer House, Chicago, Dec. 11-16. Dr. Donald S. Childs. 713 E. Genesee St., Syracuse 2, N. Y., Secretary.

Regional Meetings, American College of Physicians:

- Louisville, Ky., Nov. 5. Dr. Sam A. Overstreet, 332 West Broadway, Louisville, Ky., Governor.
- Newark, N. J., Nov. 9. Dr. Edward C. Klein Jr., 6 S. Kingsman Rd., South Orange, N. J., Governor.
- Detroit, Dec. 3. Dr. H. Marvin Pollard, 1313 East Ann St., Ann Arbor, Mich., Governor.
- Hot Springs, Ark., Dec. 3. Dr. A. A. Blair, 100 S. 14th St., Ft. Smith, Ark., Governor.
- Winston-Salem, N. C., Dec. 8. Dr. Elbert Persons, Duke Hospital, Durham, N. C., Governor.

Society of Clinical Surgery, Hotel Roosevelt, New Orleans, Nov. 11-12. Dr. Frank F. Allbritten Jr., University of Kansas Medical Center, Kansas City, Mo., Secretary.

Southern Medical Association, Shamrock Hotel, Houston, Texas, Nov. 14-17. Mr. V. O. Foster, 1020 Empire Bldg., Birmingham 3, Ala., Secretary-Manager.

Southern Society of Cancer Cytology, Houston, Texas, Nov. 14-17. Dr. J. Ernest Ayre, 1155 N.W. 14th St., Miami, Fla., Secretary.

Southern Surgical Association, The Homestead, Hot Springs, Va., Dec. 6-8. Dr. George G. Finney, 2947 St. Paul St., Baltimore 18, Secretary.

Southwestern Medical Association, Westward Ho Hotel, Phoenix, Ariz., Nov. 16-18. Dr. Celso C. Stapp, 800 Montana St., El Paso, Texas, Secretary.

State Medical Journal Conference, Chicago, Nov. 7-8. Mr. Alfred J. Jackson, 535 N. Dearborn St., Chicago 10, Director.

Western Orthopedic Association, The Reef, Honolulu, Hawaii, Nov. 7-10. Dr. Ivar J. Larsen, 1133 Punchbowl, Honolulu 13, Hawaii, Secretary.

Western Society of Electro-Encephalography, Westward Ho Hotel, Phoenix, Ariz., Nov. 10-12. Dr. Sylvester N. Berens, 902 Boren Ave., Seattle, Secretary.

Western Surgical Association, Olympic Hotel, Seattle, Dec. 1-3. Dr. John T. Reynolds, 612 N. Michigan Blvd., Chicago 11, Secretary.

FOREIGN AND INTERNATIONAL

Conference of International Union for Health Education of the Public, Rome, Italy, Apr. 27-May 5, 1956. Mr. Lucien Viborel, 92 rue St. Denis, Paris 1er, France, Secretary-General.

Congress of International Association of Limnology, Helsinki, Finland, July 26-Aug. 7, 1956. For information address: Dr. H. Luther, Snellmansgatan 16 C 36, Helsinki, Finland.

Congress of International Association of Logopedics and Phoniatrics, Barcelona, Spain, Sept. 3-7, 1956. Dr. J. Perello, Provenza 319, Barcelona 9, Spain, Secretary-General.

Congress of International Society of Hematology, Hotel Statler, Boston, Mass., U.S.A., Sept. 3-8, 1956. Dr. W. C. Moloney, 39 Bay State Road, Boston, Mass., U.S.A., Secretary.

Congress of International Society for Research on Anesthesia, Miami Beach, Fla., U.S.A., Mar. 12-15, 1956. For information write: Dr. R. J. Whitacre, 13951 Terrace Road, Cleveland 12, Ohio, U. S. A.

Congress of Latin Society of Ophthalmology, Madrid, Spain, April 24-28, 1956. For information address: Dr. Costi, Montalban 3, Madrid, Spain.

European Congress of Allergology, Florence, Italy, May 1956. Prof. Umberto Serafini, Largo della Gancia 5, Rome, Italy, Secretary-General.

European Congress of Cardiology, Stockholm, Sweden, Sept. 10-14, 1956. Dr. Karl Erik Grewin, Sodersjukhuset, Stockholm, Sweden, General Secretary.

European Symposium on Vitamin B_{12}, Hamburg, Germany, May 1956. For information write: Doz. Dr. H. Bauer, Nervenklinik. Hamburg-Eppendorf, Germany.

International Academy of Pathology, Cincinnati, Ohio, U. S. A., April 24-25, 1956. Dr. F. K. Mostofi, Armed Forces Institute of Pathology, Washington 25, D. C., U. S. A., Secretary.

International Congress Against Alcoholism, Istanbul, Turkey, Sept. 10-15, 1956. For information address: International contre l'Alcoolisme, Case Gare 49, Lausanne, Switzerland.

International Congress of Allergology, Rio de Janeiro, Brazil, S. A., Nov. 6-13. Dr. Bernard N. Halpern, 197 boulevard St. Germain, Paris 7e, France, Secretary General.

International Congress of Anthropological and Ethnological Sciences, Philadelphia, Pa., U. S. A., Sept. 2-9, 1956. Dr. William N. Fenton, National Research Council, Division of Anthropology and Psychology, 2101 Constitution Avenue, Washington 25, D. C., U. S. A., Secretary-General.

International Congress on Diseases of the Chest, Cologne, Germany, Aug. 19-23, 1956. Mr. Murray Kornfeld, 112 East Chestnut St., Chicago 11, Illinois, U. S. A., Executive Director.

International Congress of Entomology, Montreal, Canada, Aug. 17-25, 1956. Mr. J. A. Downes, Science Service Bldg., Carling Ave., Ottawa, Ont., Canada, Secretary.

International Congress of Gastroenterology, London, England, July 18-21, 1956. Mr. Hermon Taylor, London Hospital, White Chapel, London E.1, England, Honorable Secretary.

International Congress for the History of Science, Florence and Milan, Italy, Sept. 3-10, 1956. Dr. M. L. Bonelli, Instituto di Ottica, Arcetri, Florence, Italy, Secretary-General.

International Congress of Hydatid Disease, Athens, Greece, Sept. 14-18, 1956. Prof. B. Kourias, Croix-Rouge Hellenique, 1 rue Mackenzie King, Athens, Greece, Secretary-General.

International Congress of Internal Medicine, Madrid, Spain, Sept. 19-23, 1956. Dr. J. C. De Oya and Dr. J. Gimena, Hostaleza No. 90, Madrid, Spain, Secretaries.

International Congress of International College of Surgeons, Palmer House, Chicago, Illinois, U. S. A., Sept. 9-13, 1956. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U. S. A., Secretary-General.

International Congress of Neo-Hippocratic Medicine, Montecatini, Terme, Italy, May 20-22, 1956. Dr. Valente, 41 Avenue Verdi, Montecatini Terme, Italy, Secretary-General.

International Congress of Paediatrics, Copenhagen, Denmark, July 22-27, 1956. Professor P. Plum, Rigshospitalet, Copenhagen, Denmark, President.

International Congress of Physical Medicine, Copenhagen, Denmark, August 20-24, 1956. Dr. B. Strandberg, Kobenhavns amts sygehus i Gentofte, Dept. of Rheumatology and Physical Medicine, Hellerup, Denmark, Honorable Secretary.

International Congress of Physiopathology of Animal Reproduction and Artificial Insemination, Cambridge, England. June 25-29, 1956. For information address: Dr. Joseph Edwards, Production Division, Milk Marketing Board, Thames Ditton, Surrey, England.

International Congress of Radiology, Mexico, D. F., Mexico, July 22-28, 1956. Dr. Jose Noriega, Tepic 126 (2e piso), Mexico, D. F. 7, Mexico, Secretary General.

International Congress of World Confederation for Physical Therapy, New York, New York, U. S. A., June 17-23, 1956. For information address: Miss Mildred Elson, American Physical Therapy Association, 1790 Broadway, New York 19, New York, U. S. A.

International General Medical Congress, University of Rosario Medical College, Rosario, Argentina, S. A., Nov. 7-12. Dean Jose Imhoff, Santa Fé 3100, Rosario, Argentina, S. A., Chairman.

International Genetics Symposium, Tokyo and Kyoto, Japan, Sept 6-12, 1956. For information address: Secretary, International Genetics Symposium, Science Council of Japan, Ueno Park, Tokyo, Japan.

International Physiological Congress, Brussels, Belgium, July 29-Aug. 5, 1956. For information address: Prof. J. Reuse, Faculte de Medicine et de Pharmacie, 115 Boulevard de Waterloo, Brussels, Belgium.

International Professional Union of Gynecologists and Obstetricians, Madrid, Spain, Sept. 28-29, 1956. Dr. Jacques Courtois, 1 rue Racine, St-Germain-en-Laye (S and O), France, Permanent International Secretary-General.

Latin American Congress of Pathology, Mexico, D. F., Mexico. Dec. 11-17. For information address: Laboratorio de Anatomia Patologica, Instituto N. de Cardiologia, Avenida Cuauhtemoc 300, Mexico 7, D. F., Mexico.

North Queensland Medical Conference, Cairns, North Queensland, Australia, June 25-30, 1956. Dr. W. R. Horsfall, P. O Box 672, Cairns, N.Q., Australia, Secretary.

Pan American Congress of Gastroenterology, Havana, Cuba, Jan. 20-27, 1956. For information address: Dr. Norberto M. Stapler, 1267 J. E. Uriburu, Buenos Aires, Argentine, S. A.

Pan American Congress of Ophthalmology, Santiago, Chile, S. A., Jan. 9-14, 1956. Dr. Rene Contardo, Huerfanos 930, Of. 74, Santiago, Chile, Secretary General.

Pan American Congress of Otorhinolaryngology and Bronchoesophagology, San Juan, Puerto Rico, March 8-12, 1956. Dr. C. E. Munoz MacCormick, Apartado 9111, Santurce, Puerto Rico, Secretary General.

Pan American Medical Women's Alliance, Santiago, Chile, March 6-13, 1956. For information address: Dr. Eva Cutright, 458 Beall Ave., Wooster, Ohio, U. S. A.

Venezuelan Congress of Medical Sciences, Caracas, Venezuela, S. A., Nov. 18-26. Dr. A. L. Briceno Rossi, Apartado 4412, Olic. del Este, Caracas, Venezuela, S. A., Secretary General.

World Congress on Fertility and Sterility, Naples, Italy, May 18-26, 1956. For information address: Prof. G. Tesauro, S. Andrea della Dame, 19, Naples, Italy.

MAGAZINE–TELEVISION REPORT

The following list of current medical articles in mass-circulation magazines and forthcoming network television programs on medical subjects is published each week only for the information of readers of The Journal. *Unless specifically stated, the American Medical Association neither approves nor disapproves of the articles and programs reported.*

TELEVISION

Monday, Oct. 31, 1955

NBC-TV, 11:20 a. m. EST. "Medical and Health News with Howard Whitman," a weekly segment of the "Home" program.

NBC-TV, 9 p. m. EST. "Medic" turns to recent history for its presentation on aviation medicine. Titled "The World So High," the drama tells how William Lovelace, M.D., an Army doctor, parachuted from a plane eight miles above the earth to test the effects of high altitude on the human system.

ABC-TV, 9:30 p. m. EST. "Medical Horizons" visits the St. Louis University School of Medicine for a report on temperature and its effect on the human body. Produced in cooperation with the American Medical Association.

Saturday, Nov. 5, 1955

ABC-TV, 10 p. m. EST. "Tomorrow's Careers" presents a description of the career of a dermatologist.

Monday, Nov. 7, 1955

NBC-TV, 9 p. m. EST. "Medic," in a presentation titled "When Mama Says Jump," dramatizes the story of a 17-year-old high school senior, which shows the physical and emotional causes of acne.

ABC-TV, 9:30 p. m. EST. "Medical Horizons" will show therapeutic programs for the mentally ill, individually prescribed in accordance with each patient's emotional needs and conflicts, in a remote pickup from the Menninger Foundation in Topeka, Kan. Produced in cooperation with the American Medical Association.

MAGAZINES

Saturday Evening Post, Oct. 22, 1955

"Help for the Living Dead," by Robert M. Yoder

"There seems general agreement that the outlook for schizophrenia's tormented thousands and their relatives is brighter than in years. Solid progress is being made and it seems justified to hope for a major break." The article reports on the use of *d*-lysergic acid diethylamide (LSD).

Reader's Digest, November, 1955

"Is This the No. 1 Villain in Heart Disease?" by Blake Clark

"New research suggests that the century's great scourge may be related to the high amount of fat in the American diet." In commenting on this article, Dr. Paul Dudley White says it "presents some important pioneering which, if confirmed by further studies, can have great promise of hope for our future."

"Our Busy Bones," by J. D. Ratcliff

A factual report on the function of the body's bone structure, together with a discussion of methods used in repairing bones, controlling their growth, and transfusing fluid into the bone marrow. Condensed from an article in the November, 1955, issue of *Today's Health.*

"A Sick Mind Finds Itself," by Leonard Wallace Robinson

The author describes his personal observation of reserpine treatment on a mentally ill businessman.

Coronet, November, 1955

"Anesthesia," by Donald A. Dukelow, M.D.

An A. M. A. staff physician, in an article condensed from *Today's Health,* tells of "new discoveries in the field of anesthesia which enable surgeons to perform longer and more complex operations and make recovery quicker and easier."

The American Weekly, Oct. 30, 1955

"Children in the Dark," by John Gunther

The concluding article in a three-part series on mental illness tells how doctors are using new weapons to help young patients.

Family Circle, November, 1955

"Having Babies After 35," by Ruth and Edward Brecher

The tenor of reports reviewed by the authors was: "A woman in good health can have a baby today with negligible risk to herself, regardless of age. Good prenatal care can reduce this insignificant risk still further. The only concern any older woman need have is to consult a qualified obstetrician as early in pregnancy as possible and as often thereafter as he recommends."

DEATHS

Kramer, Sidney David, St. Petersburg, Fla.; born Dec. 25, 1891; Columbia University College of Physicians and Surgeons, New York City, 1920; specialist certified by the American Board of Pediatrics; at one time on the faculty of Harvard Medical School in Boston and the University of Michigan Medical School, Ann Arbor; for many years practiced in Salem, Mass.; at one time associated with the Harvard University Infantile Paralysis Commission; served as director of research of the Infantile Paralysis Commission of the Long Island College of Medicine in Brooklyn, and associate director of the Michigan Department of Health Bureau of Laboratories in Lansing; formerly on the staff of the Children's Hospital in Boston and the Jewish Hospital in Brooklyn; died in St. Anthony's Hospital June 24, aged 63, of acute myocardial infarction.

Frick, Donald Jackson ⊕ La Verne, Calif.; born in Jonesboro, Ill., Jan. 23, 1874; Medical Department of the University of California, San Francisco, 1899; formerly on the faculty of the College of Medical Evangelists, Loma Linda and Los Angeles, and University of Southern California School of Medicine in Los Angeles; an associate member of the American Medical Association; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; past-president of the Los Angeles County Medical Association and the Los Angeles Heart and Tuberculosis Association; at one time chairman of the advisory board of General Hospital; on the staff of the Good Samaritan Hospital, Los Angeles, where he died July 26, aged 81, of adenocarcinoma of the pancreas.

Fuller, Gaillard Botchford ⊕ Loudonville, Ohio; born in Loudonville March 25, 1877; Jefferson Medical College of Philadelphia, 1904; member of the American Academy of General Practice; for many years member of the board of education; at one time county health commissioner; president of the Farmers Savings Bank and chairman of the Loudonville Civic Association; elected as the first president of Loudonville's Rotary Club; was honored in June, 1954, by the citizens of Loudonville when they helped him celebrate 50 years of medical service to the community; in addition to the numerous honors bestowed upon him, the citizens published a pamphlet on his life; died in the Mansfield (Ohio) General Hospital Aug. 1, aged 78, of coronary disease.

Stone, Merlin Jones ⊕ Grants Pass, Ore.; born in Ogden, Utah, May 2, 1891; Rush Medical College, Chicago, 1922; specialist certified by the American Board of Dermatology and Syphilology; interned at the Thomas D. Dee Memorial Hospital in Ogden, Utah; associate professor and acting head of the department of anatomy at the University of Oklahoma in Norman, 1922-1923; held appointments on the teaching staff of the New York Post-Graduate Medical School and Hospital as well as the Cornell Clinic in New York City; served during World War I; consulting dermatologist at St. Joseph's and Stamford hospitals in Stamford, Conn.; on the staff of the Josephine General Hospital, where he died Aug. 1, aged 64, of arteriosclerotic heart disease.

Nifong, Frank Gosney ⊕ Columbia, Mo.; born Jan. 19, 1867; Missouri Medical College, St. Louis, 1889; from 1891 to 1894 on the faculty of his alma mater; for three years on the faculty of the University of Missouri School of Medicine; past-president of the Missouri State Medical Association and the Boone County Medical Society; for many years in charge of the health program at Stephens College; member of the Western Surgical Association; fellow of the American College of Surgeons; for many years on the staff of the Boone County Hospital, where he died July 4, aged 88, of carcinoma of the rectum with metastases.

Cone, Robert Earl ⊕ Galveston, Texas; born in Galveston Feb. 27, 1894; University of Texas School of Medicine, Galveston, 1919; professor of urology at his alma mater, now known as the University of Texas Medical Branch; specialist certified by the American Board of Urology; member of the American Urological Association and past-president of the South Central Section; past-president of the Texas Urological Society; fellow of the American College of Surgeons; consultant to the board of urology at St. Luke's Hospital; died May 24, aged 61, of adenocarcinoma of the stomach.

Best, William John, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1911; died in the Misericordia Hospital June 20, aged 69.

Black, John Fielding James ⊕ White Plains, N. Y.; Columbia University College of Physicians and Surgeons, New York City, 1900; fellow of the American College of Surgeons; an associate member of the American Medical Association; for many years surgeon for the New York Central Railroad System; on the staffs of the New York Hospital—Westchester Division, the St. Agnes Hospital, and the White Plains Hospital, where he died Sept. 4, aged 82, of lymphosarcoma.

Bode, Albert, St. Louis; St. Louis University School of Medicine, 1906; died Aug. 22, aged 78, of coronary thrombosis.

Bowser, Harold Curtis ⊕ Urbana, Ill.; Syracuse University College of Medicine, 1938; interned at the General Hospital in Syracuse; secretary-treasurer of the Champaign County Medical Society; served during World War II; on the staffs of the Burnham City Hospital in Champaign and the Mercy Hospital; member of the American Academy of General Practice; died Aug. 29, aged 41, of coronary occlusion.

Burleson, Marvin Wilmer ⊕ Fort Dodge, Iowa; State University of Iowa College of Medicine, Iowa City, 1937; interned at the City Hospital in Akron, where he was a resident; fellow of the American College of Surgeons; served during World War II; died Aug. 18, aged 41.

Chalstrom, Harry Edward Jr. ⊕ Baton Rouge, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1940; interned at the Charity Hospital in New Orleans, where he was a resident; member of the American Society of Anesthesiologists; served during World War II; died in the Massachusetts Memorial Hospital, Boston, Aug. 1, aged 39, of hypertension.

Crossland, Stewart Harrold ⊕ Gary, Ind.; University of Tennessee College of Medicine, Memphis, 1924; served in the U. S. Naval Reserve during World War II; died June 13, aged 55, of a heart attack.

Draney, Thomas Leo, Kansas City, Mo.; John A. Creighton Medical College, Omaha, 1917; served during World War I; on the staffs of St. Joseph's Hospital, Kansas City General Hospital, and St. Mary's Hospital, where he died Aug. 11, aged 64, of cerebral hemorrhage and arteriosclerosis.

Head, William Herbert Jr., Los Angeles; Johns Hopkins University School of Medicine, Baltimore, 1950; formerly a resident at the Gallinger Municipal and Georgetown University hospitals in Washington, D. C.; resident and formerly intern at the Veterans Administration Center; died Aug. 13, aged 33, in an airplane crash.

Holmes, Fred Gooding ⊕ Phoenix, Ariz.; Harvard Medical School, Boston, 1918; an associate member of the American Medical Association; specialist certified by the American Board of Internal Medicine; fellow and ex-governor of the American College of Physicians; member of the American Trudeau Society; past-president of the Arizona State Tuberculosis Association; served on the staffs of the Good Samaritan and St. Joseph's hospitals; drowned in the Klamath River, near Crescent City, Calif., Aug. 6, aged 65.

Holt, Lloyd Mott ⊕ Shamokin, Pa.; Jefferson Medical College of Philadelphia, 1911; died in the Shamokin State Hospital Aug. 1, aged 69, of arteriosclerotic heart disease.

⊕ Indicates Member of the American Medical Association.

Hyde, Charles Wilbur ⊕ Washington, D. C.; George Washington University School of Medicine, Washington, 1904; served in France during World War I; formerly on the faculty of his alma mater and the Georgetown University School of Medicine; cofounder of the Doctors Hospital, where he was emeritus head of the department of anesthesiology; died Aug. 22, aged 77, of coronary occlusion.

Leech, Frank McConnell ⊕ Lexington, Va.; Medical College of Virginia, Richmond, 1920; fellow of the American College of Surgeons; interned at the Sheltering Arms Hospital in Richmond; served during World War I; associated with the Jackson Memorial Hospital; died Aug. 9, aged 60, of a heart attack.

MacCarthy, Francis Hamilton ⊕ Glenwood, Fla.; Boston University School of Medicine, 1900; member of the Massachusetts Medical Society; for many years practiced in Boston, where he was on the staff of the Massachusetts Memorial Hospitals; served as a member of the Massachusetts State Board of Health; died in a nursing home in Deland Aug. 10, aged 83, of cardiorenal disease.

McGinnis, John Simpson ⊕ Lexington, Ky.; University of Louisville Medical Department, 1909; died in St. Joseph Hospital Aug. 16, aged 68, as the result of burns.

McLaughlin, James Arthur ⊕ Wichita, Kan.; Barnes Medical College, St. Louis, 1899; served during World War I; died in Wesley Hospital Aug. 19, aged 85, of uremia.

McNeil, Irving ⊕ El Paso, Texas; George Washington University School of Medicine, Washington, D. C., 1903; veteran of the Spanish-American War; served as health officer of El Paso County and as city school physician; retired after many years service in the U. S. Public Health Service; died Aug. 10, aged 78, of carcinoma of the lung.

Mamlet, Alfred Moses ⊕ Newark, N. J.; University of Vermont College of Medicine, Burlington, 1921; specialist certified by the American Board of Otolaryngology; chief of otolaryngology at the Clara Maass Memorial Hospital; consultant in laryngology at the Columbus Hospital; adjunct laryngologist at the Newark Beth Israel Hospital, where he died Sept. 6, aged 59, of acute myocardial infarction.

Miksch, Carl Edward ⊕ North Charleroi, Pa.; Jefferson Medical College of Philadelphia, 1923; on the staff of the Charleroi-Monessen Hospital in Charleroi, where he died July 26, aged 58, of uremia and hypertension.

Mitchell, William Francis, Syracuse, N. Y.; Syracuse University College of Medicine, 1916; member of the Medical Society of the State of New York; veteran of World War I; past-secretary of the New York State Association of School Physicians; served as chief medical examiner for the city schools; died in the Syracuse Memorial Hospital Aug. 3, aged 65, of bronchogenic carcinoma.

Nelson, John Alfred ⊕ Washington, D. C.; Georgetown University School of Medicine, Washington, D. C., 1919; also a lawyer; chief medical adviser to the president of the board of appeals for the Veterans Administration until his retirement in January, 1954; died Aug. 13, aged 71, of cancer.

Pearlstein, Jacob, Brooklyn, N. Y.; Tulane University of Louisiana School of Medicine, New Orleans, 1927; member of the Medical Society of the State of New York; served in the Selective Service System during World War II; on the staff of the Brooklyn Women's Hospital; died in Beth El Hospital Sept. 3, aged 54, of coronary disease.

Pierce, Eugene Bennett, Hudson, Ohio; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1903; served as superintendent of the Molly Stark Hospital in Canton and the Michigan State Sanatorium in Howell, Mich.; died in Akron Aug. 29, aged 79.

Prescott, Harry V. ⊕ Dallas City, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1893; University of Pennsylvania Department of Medicine, Philadelphia, 1896; died in the Burlington (Iowa) Hospital Aug. 8, aged 88, of coronary artery disease.

Rankin, Edward P., Berkeley, Calif.; University of California Medical School, San Francisco, 1930; interned at the Highland-Alameda County Hospital in Oakland and the Fairmont Hospital of Alameda County in San Leandro; died Aug. 27, aged 68, of arteriosclerosis.

Rawers, Clarence Bernard, Bergholz, Ohio; Ohio State University College of Medicine, Columbus, 1926; member of the Ohio State Medical Association; formerly county health commissioner; a member of the staffs of the Ohio Valley and Gill Memorial hospitals in Steubenville; served during World War II; died in the Crile Veterans Hospital, Cleveland, Aug. 4, aged 53.

Reese, George Washington, Ocean City, N. J.; University of Pennsylvania Department of Medicine, Philadelphia, 1896; member of the House of Delegates of the American Medical Association in 1926 and 1930; for many years on the staff of the Shamokin (Pa.) Hospital; died July 30, aged 82, of a heart attack.

Renn, Carl Grover ⊕ Hughesville, Pa.; Jefferson Medical College of Philadelphia, 1915; served during World Wars I and II; immediate past-president of the Lycoming County Medical Society for many years health officer; one of the founders and on the staff of the Muncy (Pa.) Valley Hospital, where he died Aug. 22, aged 69, of coronary thrombosis.

Sand, Herman ⊕ New York City; Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Prussia, Germany, 1916; member of the American Academy of General Practice; on the staff of the Lincoln Hospital; died in the Mary Hitchcock Memorial Hospital, Hanover, N. H., Aug. 6, aged 65, of myocardial infarction due to coronary thrombosis.

Sauer, John George, St. Petersburg, Fla.; University of Vermont College of Medicine, Burlington, 1890; died in Mound Park Hospital Aug. 21, aged 89, of bronchopneumonia.

Seljeskog, Sigsbee Raymond ⊕ Minneapolis; University of Minnesota Medical School, Minneapolis, 1936; interned at the Lutheran Deaconess Home and Hospital; member of the American Academy of General Practice; awarded the Bronze Star for meritorious service in connection with military operations against the enemy during World War II; served as superintendent of the Elizabeth Kenny Institute; on the staff of Lutheran Deaconess Hospital; died Aug. 15, aged 55, of hypertensive cardiovascular disease.

Silver, Gershon Benjamin ⊕ Rocky Hill, Conn.; Tufts College Medical School, Boston, 1937; specialist certified by the American Board of Internal Medicine; interned at the New Britain (Conn.) General Hospital; served during World War II; on the staff of the State of Connecticut Veterans Home and Hospital; died in Middletown Aug. 22, aged 43, of brain tumor.

Skaggs, Henry C. ⊕ Montgomery, W. Va. (licensed in West Virginia in 1904); an associate member of the American Medical Association; served as a member of the city council and as mayor; died Sept. 9, aged 72, of a heart attack.

Stevenson, James ⊕ Tulsa, Okla.; University of Illinois College of Medicine, Chicago, 1917; member of the House of Delegates of the American Medical Association from 1944 to 1954; in 1938 president of the Tulsa County Medical Society after a term on the board of trustees; past-president of the Oklahoma State Medical Association; member of the American Academy of Dermatology and Syphilology; a founder of the Blue Cross Plan; died Sept. 11, aged 61, of carcinoma.

Templin, Oscar Elsworth ⊕ Tulsa, Okla.; Vanderbilt University School of Medicine, Nashville, Tenn., 1905; for many years secretary of the Woods County Medical Society when he practiced in Alva, where he was city and county physician; served during World War I; died Aug. 16, aged 85, of bronchopneumonia and arteriosclerosis.

Wade, Charles Benjamin, Roseburg, Ore.; University of Oregon Medical School, Portland, 1914; served during World War I; formerly county coroner and county health officer; died in Portland Sept. 2, aged 66, of thrombosis.

Wood, Harold Austin ⊕ Washington, D. C.; Maryland Medical College, Baltimore, 1909; died May 18, aged 70, of heart disease.

FOREIGN LETTERS

BELGIUM

Hazards of Atomic Explosions.—The 29th session of the Medical Conferences of Brussels was held in June. Professor Lacassagne reported on the differences between the effects of the atom bomb and those of the hydrogen bomb. The lesions caused by the former are of four types: (1) superacute with destruction of the intestinal mucosa and the elements of the blood leading rapidly to death from septicemia; (2) acute with diffuse hemorrhages due to various disturbances of blood coagulation; (3) subacute with aplastic anemia, secondary infections, cutaneous and pilosebaceous lesions, lesions of the gonads, cataract, spontaneous abortion, and congenital anomalies; and (4) chronic with disorders appearing late and affecting chromatin and blood composition and producing bone fragility, poor cicatrization, sclerosis, or cancer. The effects of the hydrogen bomb are much more severe, especially because its effects may be delayed and because of the possibility of transport to far places of radioactive elements that may remain harmful for as long as 20 years. The chief hazards to the world in general are the augmentation of the earth's radioactivity, which at present can be considered harmless, and the effect on the basal cells of the body, which might play a part in accentuating the changes associated with the aging process.

Psychology of Handicapped Persons.—In *Acta neurologica et psychiatrica belgica,* Noel calls attention to the urgent need for psychological study of handicapped persons. They encounter multiple frustrations: physical limitations, physical and social insecurity, loss of prestige compared with their former status, and rejection on the part of society. Reactions to these might result in anxiety, regression with excessive dependence, search for prestige, or aggressiveness. These reactions combined with the personality type before the onset of disability lead to behavior that may be neurotic, psychotic, lackadaisical, overly aggressive, or hypochondriacal. A proper attitude on the part of others can prevent reactions unfavorable to rehabilitation. Occupational therapy should be administered during the acute phase. The atmosphere created in the rehabilitation center is of vital importance during the chronic stage. The author does not favor individual psychotherapy. The most dangerous period for the patient is his return to his family. An organization that will find work for handicapped persons is urgently needed.

Upside-Down Gastrectomy.—At a meeting of the Royal Academy of Medicine, Deloyers described a new technique of gastrectomy. He considers it more logical and claims that it produces better results than the conventional methods. The part resected is the acidogenous zone, the alkaline zone being left in place. This obviates the dumping syndrome. The new operation, however, has disadvantages and requires further study.

BRAZIL

Measure of Pressure in the Portal Vein.—At a recent meeting of the Associação Paulista de Medicina, Dr. Ary Lopes de Almeida and his co-workers of the São Paulo State University Hospital reported on the measurement of the intrasplenic pressure as a means to ascertain the blood pressure in the portal vein. The intrasplenic pressure of 75 patients was determined by the use of a 12 cm. long no. 15 needle connected with a water manometer. The needle was introduced through the 9th or 10th intercostal space at the posterior or midaxillary line. Introducing the needle with a slight inclination upward and backward, it was easy to reach the spleen when it was not enlarged. No accident occurred in this series. The first group consisted of: (1) 14 patients with no evidence of portal hypertension, with nonpalpable spleens, and in whom the pressure varied between 1 and 29 cm. H_2O (average 16.6); (2) 12 patients with heart disease compensated or not, with or without hypertension, with nonpalpable spleens, and in whom the pressure varied between 4 and 29 cm. H_2O (average of 14); and (3) 8 patients designated as controls, in whom the pressure varied between 9 and 24 cm. H_2O (average 17.8). The second group contained 10 patients with hepatosplenomegaly caused by uterine fibroma, with anemia and hypersplenism, ancylostomatic anemia, visceral leishmaniasis, malaria, acute myelocytic leukemia, pernicious anemia, and intestinal schistosomiasis. The four patients with intestinal schistosomiasis included in this group had no evidence of portal hypertension. In this second group the pressures varied between 10 and 28 cm. H_2O (average of 20.6). There was no relationship between the size of the spleen and the pressure. The pressures recorded for these patients with hepatosplenomegaly were no different from the cases considered as normal. In a third group the results obtained in 19 patients with hepatic cirrhosis were analyzed; in 12 the cirrhosis was caused by intestinal schistosomiasis, in 5 it was postnecrotic, and in 2 it was caused by alcoholism. There was no difference between the patients with or without ascites and with or without hemorrhage. Repetition of the determination of the pressure in the same patient on different days showed only slight differences. The authors concluded that this method gives a reliable index to pressure in the portal system.

Acute Intestinal Obstruction.—Levy and Mello in *Revista brasileira de cirurgia* (**29**:371, 1955) analyzed a series of 135 successive cases of acute intestinal obstruction in 132 patients. The age distribution was as follows: 28 were aged 9 and under, 9 were aged 10 to 19, 13 were aged 20 to 29, 18 were aged 30 to 39, 24 were aged 40 to 49, 21 were aged 50 to 59, 14 were aged 60 to 69, and 8 were aged 70 or over. Of the 28 who were aged 9 and under, 12 cases occurred in infants in the first year of life, and, of these, 11 were in boys. There were 26 deaths, but only 21 were directly attributable to the obstruction, a case fatality rate of 15.5%. The other five deaths occurred in patients with advanced cancers of the large intestine or the rectum. There were 104 cases of mechanical obstruction (65 of the small intestine and 39 of the colon and rectum) and 31 cases of paralytic ileus. The mechanical obstructions were caused by hernia, volvulus, intussusception, adhesion, duodenal atresia, megacolon, ascariasis, edema, ileal endometriosis, imperforate anus, congenital stenosis, impacted feces, inflammatory stenosis, neoplastic stenosis, and defective colostomy.

Deaths of Infants in Hospital.—Dr. Azarias A. Carvalho and his co-workers in *Revista do Hospital das clínicas* (**10**:15, 1955) analyzed a series of 15,235 infants admitted to the hospital, of whom 2,828 died, representing a mortality rate of 18.54%. The cause of death in the infants was established by autopsy in 1,771 cases; 30.41% were caused by respiratory diseases, 28.81% by general systemic diseases, 22.87% by gastrointestinal diseases, 6.89% by diseases of the nervous system, and of the rest no system contributed more than 2%. Of the respiratory diseases, almost all were infections. Infections accounted for 43.81%; prenatal causes for 21.39%; disturbances of the metabolism, nutrition, and growth for 6.78%; and trauma or physical agents for 2.33%.

ENGLAND

Tuberculous Immigrants.—Concern has been expressed about the possible health and social implications of the increasing number of tuberculous immigrants who are coming into this country. The problem has been discussed both in Parliament and at the annual conference of the British Tuberculosis Association. At the latter, Dr. Norman Macdonald reported that of 258 tuberculous patients from overseas in hospitals in the London area and the Home Counties, about half were of European

---

The items in these letters are contributed by regular correspondents in the various foreign countries.

origin, a third were nonwhite, and a sixth were from Malta or Cyprus. Men outnumbered women two to one. Three-quarters of the patients were over 25 years of age, and only 12 were under 20. Apart from students, most of these patients had come to find work; only six came to this country specifically for treatment. Early acute lesions predominated in Cyprians, Africans, and West Indians. In Europeans the lesions were more often of the later or recrudescent types, and Indians showed an even proportion of both types. Stress factors were commonly elicited in all groups, and the commonest factor appeared to be overwork, especially overtime. Next came mental strain, due to difficulties in adjustment, homesickness, and anxiety.

The most effective way of dealing with the situation would be for the country of origin to undertake routine radiography and tuberculin testing of emigrants with BCG vaccination of negative reactors. This, however, would give rise to legal difficulties if imposed as a requirement for entry to this country. As the parliamentary secretary to the Ministry of Health pointed out in the House of Commons, most of the patients involved were either Commonwealth citizens or citizens of the Irish Republic, over whose entry into the United Kingdom there is no statutory control. Any measure to implement a health check on such citizens would require legislation. The small minority of foreigners should be checked on entering the country, but this would mean the setting up at the 61 ports, where there are already port health authorities, of a new medical check to pass many thousands of people through a fine net, in order to trace a small number of infected people. On the available evidence the government did not consider that this was justifiable.

At the conference of the British Tuberculosis Association, particular attention was devoted to the problem of the tuberculous Irish immigrant. A survey in northwest London showed that an average tuberculosis ward of 15 patients contained 12 British, 2 Irish, and 1 overseas-born patient. That the Irish accounted for twice as many occupied beds as all the overseas contingent was explained by their number (20,000 arriving annually), their young age, the predominance of women, and the large proportion from rural areas. Dr. Michael Flynn of West Meath pointed out that for over 20 years Britain had been the major receiving country for Irish immigrants. Of 1,165 patients in Dublin sanatoriums, 202 (17%) came from outside County Dublin, but 21% of the general population was born outside this area so that the position was different from that in London. Ten per cent of patients on the Irish tuberculosis register had developed tuberculosis in Britain and had returned home, often infecting other members of their families. Others broke down soon after return. In County Roscommon, for instance, in the period 1951 to 1953, of 121 new cases in the 15 to 34 age group, 60% had resided in areas outside the country—31% in Britain.

Tuberculosis in The Hebrides.—According to Dr. R. Stevenson Diog the island of Lewis, one of the islands of the Hebrides, is about the blackest spot in Britain so far as tuberculosis is concerned, with a tuberculosis death rate in 1953 of 76 per 100,000 (*NAPT Bulletin* **18**:95, 1955). The island, which has a population of 24,000, forms a closed community. It is only 100 years since tuberculosis was introduced into the island, but by 1871, when the Registrar General's returns first became available, the death rate from tuberculosis was 92 per 100,000. The rate remained high until about 1930, when it began to fall. It continued downward till 1943, when it began to rise again, reaching a peak of 162 per 100,000 in 1948. The fall starting in 1930 is attributed to improvement in housing, and the subsequent rise was due to young men breaking down in the armed services and returning home to spread the infection. Because of this appalling death rate, it was decided in 1949 to go ahead with BCG vaccination. The response was most satisfactory, and to date 3,000 children have been vaccinated. Initially, all school children were tuberculin tested by the jelly test. Nonreactors were then tested by the Mantoux technique using a dilution of 1:100. The jelly test has now been replaced by the Heaf multiple puncture test, which has been shown to be simple, accurate, safe, and quick. BCG vaccination by the Heaf multiple puncture apparatus has also been tried, using the same vaccine as supplied for intradermal use. Allergy has been produced without causing any trauma, and the allergy was still present after 18 months. The reversion rate for the entire series was 1.2%. Experience has shown that the local reaction after vaccination bears no relation to the amount of vaccine injected or to the age of the vaccine but depends rather on the depth at which the inoculation is made. Only three cases of axillary adenitis with breakdown of the glands have been seen, and only two children failed to convert.

Tuberculous Student.—The 1955 Year Book of the British Student Tuberculosis Foundation Limited, which was instituted in 1952, shows that the incidence of pulmonary tuberculosis in the student population in Britain is about 1.5 per 1.000. Since there are about 81,000 university students and 85,000 full-time students in technical and training colleges, this means that there are about 250 students with active tuberculosis at any one time. In his introduction to the Year Book, Dr. Nicolas Malleson, honorary secretary of the foundation, refers to the suggestion that all students should be x-rayed before acceptance by a university, thereby helping to exclude the tuberculous student. He is glad that this has always been rejected, as he does not believe that freedom from tuberculosis should be a condition of acceptance. As it is, the student is x-rayed after he has been awarded a place. If he is found to be tuberculous, he can be treated, confident that the place is his when he is fit to take it up. In September, 1952, the first treatment unit under the aegis of the foundation was opened. This was for male students and consisted of a large hutted ward at Pinewood Hospital, about 30 miles from London. The hospital is responsible for the medical treatment, maintenance, and nursing care of the student-patients and for the provision and upkeep of the ward as part of the National Health Service. The foundation is responsible for providing the teaching and occupational facilities needed. It advises on the selection of patients for admission, and it provides all the furniture and extra facilities over and above those needed for the usual hospital patient. It is hoped shortly to open a similar unit for tuberculous women students at Highwood Hospital in Essex.

State May Pay for Face Lifting.—A middle-aged woman of limited means asked her family physician if, under the National Health Service, her face could be lifted. He sought the advice of the *British Medical Journal.* The consultant said that plastic surgery was not a special branch of surgery and that all surgery had its cosmetic aspect. Furthermore, face lifting is often done to minimize the effects of scars. Since a frivolous application could not be encouraged under the National Health Service, all the circumstances must be taken into account. This is where the good taste and judgment of a surgeon must be exhibited to a high degree. If he believes that the patient's future welfare can be genuinely increased by any form of operation, there is no reason why it should not be performed under the service. The advice given to the patient would depend largely on her reasons for wanting her face to be lifted. Apart from the reply given by the journal in this case, there is, in fact, scope for what may be called cosmetic medicine and surgery under the National Health Service. For instance, about 54,000 wigs were issued through hospitals in the first seven years of the service. They were not life-saving needs, but they undoubtedly contributed to health and well-being. They saved many people, such as girls whose hair had been torn off by machinery, from much misery. Artificial eyes, of which about 52,000 have been distributed, might be put in a similar category.

Oath Urged for Scientists.—An oath for scientists, similar to the Hippocratic oath taken by physicians, was proposed at the meeting of the international conference of scientists in London. Prof. R. Firth of Birkbeck College said that scientists ought to be bound by moral principles restricting them from using their powers to the detriment of mankind. If such an oath could be formulated, nuclear physicists concerned about their moral obligations might be glad to sign it. He suggested the following: "Realizing that my scientific knowledge provides me with increased power over the forces of nature, I pledge myself to use this knowledge and power solely to what, in my judgment, I consider to be for the benefit of mankind, and to abstain from any scientific activity known to me to be intended for harmful purposes." Mr. Walter Elliott, a chairman of the conference, said: "This brings up the difficult question of whether, if a philosopher such as Nietzsche were practicing in London at this moment, the fact that he considered his doctrines to be for the benefit of mankind would be regarded as a valid excuse if they were producing Fascist riots in the south of London."

Clearing the Air.—An annotation in the Aug. 6, 1955, issue of the *British Medical Journal* states that the Clean Air Bill introduced into the House of Commons enjoys that general approval throughout the country without which its intentions would soon be frustrated. The bill aims to (1) prohibit the emission of dark smoke from chimneys, railway engines, and vessels, subject to certain qualifications, (2) prohibit the installation of new industrial furnaces unless operated without emitting smoke, (3) require that the emission of grit and dust shall be minimized and that new industrial furnaces burning pulverized fuel or large quantities of other solid fuel shall be provided with grit-arresting equipment, and (4) empower local authorities to declare "smoke-control areas" in which the emission of smoke from chimneys will constitute an offense. In the smoke-control areas the owners or occupiers of private dwellings will receive grants covering 70% of the cost of adapting or replacing their grates and stoves for burning smokeless fuels. If the objects of the bill are to be achieved, suitable fuel must be available in greater quantities than at present.

Changes in National Health Service.—Organizational changes likely to reduce expenditures are being considered by the Guillebaud Committee set up in April, 1953, to review the present and prospective cost of the National Health Service. Although modifications in organization and financial control will probably be recommended, the general conclusion almost certain to be drawn from the evidence is that rising costs in the future are inevitable. The task of the committee will be to recommend how increasing costs can be avoided. The estimated cost to the state this year is $1,296,000,000, of which about $966,000,000 is needed for the hospital service. Among the specific proposals being considered by the committee are: (1) the grouping of hospital management committees and the allocation of staff duties; (2) economies in the ambulance service; (3) allowing hospital confinements only on medical grounds or on a recommendation of social needs; and (4) raising the age limit on free dental treatment to 25 years.

Tuberculous Houses.—Tuberculous houses are a myth, according to Dr. J. B. Clark (*Medical Officer* 94:33, 1955). Impressed by the feeling that exists that certain dwellings in a district tend to house tuberculous people among successive occupants, he examined the initial reports of tuberculosis in two housing developments in the period 1930 to 1951. The number of dwellings involved was 9,240. The number of these dwellings from which reports of new cases of tuberculosis (excluding tuberculous glands) were made was 752. The number of dwellings with reports of more than one case—contacts excluded—was 25. Statistical analysis showed that the expected figure for reports of two cases from the same dwelling was 28; the expected figure for reports of three cases from the same dwelling was 0.8, compared with the actual figure of 2. From these figures it was concluded that it is purely coincidental that two or more persons not in contact with each other were initially reported from the same address.

Epidemic of Infectious Mononucleosis.—For the first time since it was opened in 1828, the Royal Free Hospital, one of the London teaching hospitals, has had to close its doors to new admissions. The reason was an epidemic of infectious mononucleosis among the nursing staff. The outbreak started early in July, when an American social service worker contracted the disease. By the end of the month there were 84 persons with the disease, including the chief nurse, but only three patients. It was hoped that the hospital could be reopened in two or three weeks. The outpatient department remained open throughout the epidemic.

Reciprocity Sought with National Health Service.—It is the government's policy wherever possible to negotiate reciprocal arrangements with foreign countries in respect of social services, including medical care, but it would not be practicable to refund directly the cost of medical treatments received abroad by people normally living in this country. No discussions with the United States have taken place, since the health services of the U. S. do not offer any suitable common basis for reciprocal arrangement. As long as medical and hospital treatment in the U. S. is on a private basis, no reciprocal arrangement is likely to be made.

Bunsen Burner Centenary.—To commemorate the invention of the Bunsen burner by Prof. Robert Wilhelm Bunsen in Heidelberg in 1855, a special exhibition has been opened at the Science Museum, South Kensington. Among the Bunsen burners exhibited are one of the original type, devised in 1855; a brass Bunsen burner; the Fletcher type, one of the early improved forms in which the air supply is regulated by a screw collar; and an acetylene Bunsen burner.

Family Planning Association.—In its annual report for 1954, the Family Planning Association, the president of which was Lord Horder, reports that during the year 24 new clinics were opened. During the year 66,000 new patients were seen at the clinics. Four new centers for training doctors and nurses in contraceptive technique have been accredited, and 237 doctors' and nurses' certificates were issued. The work of the Pregnancy Diagnosis Laboratory showed a 10% increase.

NORWAY

Medical Training in Norway.—Far-reaching reforms in the training of physicians approved in 1950 have not yet been put into practice in their entirety, as many of them must await certain developments in the new University of Bergen. Since 1940 it has been necessary to limit the number of entrants to the medical profession to about 100 each year because a greater number would put too much of a strain on the teaching staff and available space. With the development of teaching and clinical facilities in Bergen, the time will come when about 40 of the annual crop of medical students will get their latter term training at this university. The medical curriculum has been shortened from seven to six years by reducing the summer and Christmas holidays, by greatly increasing the junior teaching staff so that the students can be taught in small groups, and by incorporating a more effective distribution of students in hospital departments and an obligatory, postgraduate internship of 18 months. The postgraduate intern receives less remuneration than an ordinary intern and has to spend six months in a surgical department, six in a medical department, and six with a district medical officer engaged in private practice, but also discharging public health duties. This service of a young physician with a senior colleague was started in the summer of 1955. The new medical curriculum is so carefully and methodically planned that the student finds little or no time for free studies on his own account. Though he will be younger on graduation than his predecessors, he will have learned much more about certain disciplines than they did, for he will have been given special training in medical psychology, psychiatry, psychosomatic medicine, social welfare, and preventive medicine. He will also have learned to combine anatomic with clinical pathology. In *Nordisk medicin* for July 28, Prof. Axel Strom, who has taken an important part in the reform of medical training in Norway, writes that, though it is still too early to reach a final conclusion on the value of the new curriculum, it represents an advance in certain essential matters over its predecessor.

Congenital Duodenal Obstruction.—Dr. Sigurd Eek of the University of Oslo reported on 29 patients with congenital obstruction of the duodenum observed during the 25 year period 1927 to 1952. The obstruction in 5 patients was due to intrinsic and in 24 to extrinsic stenosis. In the latter group was one patient whose obstruction was due to an annular pancreas. The other 23 had malrotation of the intestine with or without volvulus. All the roentgenologically examined patients were given barium orally with only one exception, and no complications were noted. In Eek's experience the use of small quantities of barium entails no risk when the patient's stomach and duodenum are aspirated before and after the examination and are kept empty until the obstruction is overcome. Indeed in some patients it is impossible to demonstrate stenosis of the duodenum without using the contrast medium. In one patient a volvulus was untwisted with the help of a barium enema. Six patients died without any surgical intervention. Of the 23 who were operated on, three died in the immediate postoperative period. Of the 20 survivors, one died later of an intercurrent disease. The other 19 patients were alive from four months to 23 years after the operation. All have been reexamined and 18 are well. The one patient who still had abdominal discomfort was but slightly troubled by it. Of eight patients surviving gastrojejunostomy, none developed a jejunal ulcer. Although Eek found the risk of this sequel to be small, he admitted that we have yet to learn whether this comparative immunity to jejunal ulcer as a sequel to gastrojejunostomy will persist after the patient has grown up. Hence he concludes that it seems best to avoid this operation if possible. He also concluded that postoperative relapses are rare because the intestine becomes fixed to the abdominal wall by adhesions. Details of his findings are published in the *American Journal of Roentgenology, Radium Therapy and Nuclear Medicine* for May, 1955 (vol. 73, no. 5).

Proprietary Drugs.—In a postgraduate lecture to general practitioners, Dr. Karl Evang, who is at the head of the public health service, reviewed the measures taken in Norway to safeguard the public with regard to proprietary synthetic drugs. While in certain countries about 25,000 such drugs have been registered officially, Sweden has registered only about 3,000 and Norway only about 1,300. Even so there is some overlapping, due to the registration of several names for the same drug. Thus over 20 penicillin preparations are registered, and this number should be cautiously pruned. This can be done by refusing to renew the registration when the five year time limit has expired. Other preparations can be refused admission to the official register from the onset as when, for example, all the known vitamins are presented in a single preparation. Through registration a certain price control and advertisement control is effected, and the opportunity is taken to discourage the presentation of highly potent drugs in powder form to be taken by the spoonful. General practitioners should note and report any remarkable reactions they may observe in response to various drugs, and the drug-minded patient who thinks of tablets as short cuts to health should be brought up to date.

SWITZERLAND

Whooping Cough.—From 1940 to 1953, 1,000 patients died of whooping cough; 70% of them were infants, and about 28% were children from 2 to 4 years of age. Prof. W. Tobler of the University of Bern thinks that a pertussis vaccine could be dangerous because of the endotoxins contained in it. Contraindications to vaccination are a personal or familial tendency to convulsions, prematurity, debility, or physical or mental retardation; a personal or parental allergic tendency; and strong reaction to the first vaccination in patients for whom a second vaccination is being considered. Thus vaccination against whooping cough is seen to be a hazardous enterprise entailing serious responsibilities. Each case must be considered individually. The vaccine is seen to be valuable, however, when considered from the standpoint of mass statistics. Tobler advocates vaccination in the third month of life, but, since the pertussis vaccine is usually combined with the diphtheria and tetanus toxoids, the question should be raised as to whether the formation of incomplete anti-A antibodies will not be favored by the heterophil antigen of these combined toxoids. The pulmonary complications of the disease can be greatly diminished by antibiotic therapy, but the severest symptoms of pertussis, in particular encephalopathy, are due to endotoxins and not to live bacilli. Thus antibiotic therapy ought to be started early, before large quantities of these toxins have been produced. The antibiotic agents could eventually destroy the pertussis bacilli in great numbers and thus liberate the endotoxins when they are still susceptible to resorption. This phenomenon is comparable to the reaction in patients with typhoid treated with too massive doses of chloramphenicol and has been confirmed by Hansen and Schutz, who reported three cases of fatal encephalopathy occurring immediately after the administration of 60 mg. of chlortetracycline per kilogram of body weight for three to seven days. Such observations point up the dangers of a too energetic antibiotic regimen.

French Language Society for Renal Pathology.—At the first meeting in Geneva of the French Language Society for Renal Pathology in September, Professor Zollinger of St. Gall spoke on the inflammatory changes in the glomeruli occurring in lipid nephrosis. The basement membrane of the loops of Henle shows diffuse thickening and is often fragmented into thin plates isolated in foci. These changes represent massive albuminuria. The absence of hypertension during an extensive period in the course of the disease is explained by the feeble intensity of the reaction on the part of the glomeruli, which does not interfere with irrigation of the kidney. Intracapillary glomerulonephritis is an attenuated form of Masugi's nephritis and is caused by a weak antigen-antibody reaction. When Masugi's nephrotoxic serum is injected into a rat, an animal that does not elaborate many antibodies, a reaction of the nephrotic type is the result, whereas in the rabbit the serum produces typical diffuse glomerulonephritis. The rabbit can be made to react in the same manner as the rat by the administration of large doses of cortisone.

Professor Renbi of Bern proposed some changes in the classification of glomerular disease. He would interpret the clinical symptoms in the light of the histological lesions. Disturbances of extrarenal origin must be differentiated from those of probable intrarenal origin. The same symptom can have either of these origins, depending on the disease in question. Thus, arterial hypertension may be caused by renal ischemia or by capillaritis of the entire body, accompanied by arteriolar vasoconstriction without diminution of the renal output. The state of the glomeruli and of the renal plasma flow determine the prognosis.

Professors Rutishauser and Mach of Geneva said they had often noticed, at histological examination, periglomerular edema and cellular edema of the infundibulum and the proximal tubules without intracellular vacuolation. This condition is probably caused by the coordination of simple overhydration and an electrolyte imbalance. The renal lesions observed appear to be the result of the osmotic imbalance, which is capable of producing an "osmotic nephrosis." Rehydration constitutes a danger in surgical patients, particularly if the administration of dextrose and plasma expanders is ill-timed. In Wegener's syndrome, they regularly observed histological changes in the bronchopulmonary system, kidneys, muscles, and spleen. In the kidneys, the glomerular lesions preceded those of the arteries; eventually there was total angiitis. Biopsy of muscle is of doubtful value in the establishment of a diagnosis.

Professor Hamburger and Dr. Richet of Paris described their experience with the use of the artificial kidney. A course of therapy lasts from four to six hours. The artificial kidney corrects disorders of the cations as well as of the anions. They believe that it should be used in every patient with prolonged renal insufficiency without waiting until the patient's general condition is poor.

Risks of Consanguinity.—Dr. D. Klein of the University of Geneva stated that the danger associated with the marriage of first cousins lies principally in the fact that two members of the same family are latent carriers of the same recessive gene. Even if no disease is known to be present in the families, it is possible that one or several harmful genes are present in the constitution of any of their members. The rarer a disease is, the greater the role of consanguinity of the parents in its appearance. The risk of giving birth to a child with a recessive disease of the eyes is 20 times greater for consanguineous parents than for unrelated parents. It is also true that persons exceptionally favored physically and intellectually are seen among children from intrafamilial marriages, but they are much rarer than the abnormal and ill offspring. It is therefore the physician's duty categorically to advise against a union of persons who are related to some degree, even if no hereditary disease is known in the families.

Renal Amyloidosis.—Bickel and his co-workers reported to the Medical Society of Geneva the case of a 43-year-old woman who had had cavitary tuberculosis for 10 years. Her disease had continued to progress, despite a number of sojourns in the sanatorium and treatment with streptomycin, aminosalicylic acid, and isoniazid. In the summer of 1954, she appeared extremely wasted and asthenic; she had daily fever, complete anorexia, an exhausting cough, and a sputum rich in tubercle bacilli. A new course of therapy was initiated, combining streptomycin, intravenously administered aminosalicylic acid, isoniazid, and 50 to 100 mg. of cortisone daily for three months. In spite of great improvement in the patient's general condition and complete disappearance of her toxic symptoms, the state of her lungs remained unsatisfactory. The cavities failed to close, although there was a tendency to scarification and retraction on the part of some of the lesions. Two months after the start of treatment, the patient became pale and presented definite puffing out of the face and some edema of the ankles. These signs were explained by the appearance of a progressively worsening albuminuria that soon exceeded 8 gm. per 100 cc. and occasionally reached 20 gm. per 100 cc. In spite of this intense proteinuria, which was accompanied by hypoproteinemia with inversion of the ratio of albumin to globulin, the urine remained relatively free of cellular elements; it contained a few leukocytes but no red blood cells and no birefractive bodies. The absence of azotemia and arterial hypertension, together with the integrity of the eyegrounds, suggested the diagnosis of amyloid nephrosis. It is noteworthy that this complication should have arisen during cortisone therapy, since this hormone constitutes the treatment of choice for lipid nephrosis. It was in fact proposed as therapy for amyloid nephrosis. A regular check must be conducted of the urine and amount of proteins in the blood in patients with tuberculosis who receive prolonged treatment with cortisone.

Social Medicine.—Since Switzerland was a neutral country, it was spared the great social catastrophes caused by the war in other countries. A program of public health has not been necessary in Switzerland, because the general standard of living is high, and this subject has not even been taught in medical schools. The development of industry and health insurance programs, however, together with the conflict between the medical profession, which advocates individualized medicine, and the insurance programs, which tend to institutionalize medicine, are forcing physicians to study social medicine. A new society has just been founded in Bern for the study of the theoretical and practical aspects of occupational diseases and the dissemination of its findings to Swiss physicians, with preventive measures as the final goal. Another innovation is a program of studies in social medicine started by Swiss and American students at the University of Lausanne. Each month these students invite an expert to speak on some aspect of social medicine in a seminar. The animated discussions that follow these lectures show a desire on the part of the new generation of physicians not to limit the practice of medicine to the diagnosis and treatment of patients.

Hydrocortisone for Arthritis.—Lambelet and Fallet report (*Praxis* 44:741, 1955) the results of 750 injections of hydrocortisone into 130 joints of 82 patients. In chronic progressive polyarthritis, this therapy must be considered a useful adjunct and nothing more. Excellent results were obtained in coxitis and gonarthritis, but from 6 to 10 injections must be given before the effect of treatment can be properly judged. Uncomplicated scapulohumeral periarthritis of fairly recent onset is one of the rheumatic syndromes most successfully treated by hydrocortisone injections. The results are better the earlier the treatment is undertaken and the severer the pain of the disease. These injections are well tolerated. There is sometimes a slight recurrence of the pains after injection. This is always transitory, most often occurring from one to two hours after injection and varying in duration from a few hours to 24 hours.

Incidence of Diabetes.—In Basel, 95% of the population is insured against sickness, which makes it easy to obtain large-scale statistics. Drs. H. Kapp and T. Muller studied the incidence of diabetes in Basel and found that it had increased from 1.54 in 1917 to 3.40 per 1,000 in 1947. Diabetes has been said to be a disease of the rich. It is possible that wealth favors obesity, which may be a causal factor in the disease, but the Basel statistics show that there is more diabetes among the poorest classes. Former statistics were probably inaccurate because the poorer patients with diabetes could not afford to consult a physician and their disease went unrecognized.

TURKEY

Phlebitis and Menstruation.—Dr. Halil Çiray of Ankara General Hospital described phlebitis occurring during menstruation in two patients. In the first, a multipara, the phlebitis developed in her left leg two weeks after her third delivery and was of three months' duration. Her legs gained 3 cm. in thickness. Three years after her fourth delivery her pregnancy was interrupted by a spontaneous abortion after two and a half months' gestation. A curettage was performed and four days later the phlebitis in her left leg recurred. It subsided after two months. Two years later the patient sprained her ankle causing a marked phlebitis in her left leg with fever and a month later phlegmasia alba dolens developed in her left leg. This subsided after five months. The left leg had gained another 3 cm. and the right leg gained 2.5 cm. in thickness. Physiotherapy after six months was beneficial. At the age of 53 she menstruated for two days every two to three months. One day while helping to move a piece of furniture, menstruation followed by severe pain in the back, vertigo, cold sweats, and syncope occurred. The patient was given a cardiac stimulant and put to bed. During the night severe phlebitis developed in her left leg, and two months later in her right leg. In spite of the best medical treatment the condition continued for four months. The left leg gained 3 cm. and the right leg 4.5 cm. in thickness.

The second patient was a unipara who, at the age of 40, had a normal delivery. She never had an operation or phlebitis. Five years later she developed severe hypo-ovaria, and although she had received treatment her menstrual periods, which occurred every three to four months, were scanty. After treatment for a year, she requested oral medication, as she was leaving for a summer resort. During the third month there, she had a severe emotional disturbance. Severe and painful menstruation and pain in the right leg occurred on the following day and within a few hours phlebitis developed and she had fever. With her leg improperly supported, she was transferred from Istanbul to Ankara after a week; 25 days later severe phlegmasia alba dolens developed in her left leg, with diffusion to the pelvic veins. For months her condition continued to be grave. She recovered after another six weeks. Her joints were not adversely affected but her legs had gained 3 or 4 cm. in thickness.

Diphtheritic Polyneuritis.—In *Dirim* (vol. 30, no. 7) Akpay and Ustünay reported a case of diphtheritic polyneuritis in a 45-year-old man. Three months prior to admission he had had diphtheria. Six weeks after recovery laryngeal stenosis developed and whatever he tried to drink was regurgitated through his nose. He swallowed solids with difficulty, and his vision had weakened. On examination movements of his extremities were diminished, he was unable to raise his arms to his shoulders, and he walked with difficulty. He had diminished cremasteric, abdominal, bone, and tendon reflexes. There was decreased muscle tonicity but no atrophy. His sensorium was normal. He was given 200 mg. of vitamin B_1, 50 mg. of vitamin B_{12}, and strychnine daily. Great improvement was obtained with daily faradization and exercises. After two months he recovered.

VENEZUELA

New Red Blood Cell Factor.—On July 28 at a meeting of the Venezuelan Academy of Medicine, Layrisse and Arends reported on the distribution of a new red blood cell factor. In Caracas, among 233 donors of group O, this factor, called the "Diego factor" by Dr. Philip Levine, was present in 5. Of 27 members of the family of the patient, Diego, studied by Levine, this factor was present in 8. The factor is dominant and heterozygous, and its presence was traced in four generations. All the patients tested had Indian ancestors and appeared to come from regions where Caribbean Indians had resided for many years. Accordingly, 119 presumably pure Indians from Mesa de Guanipe in the eastern part of the country were tested, and 41 tests were found to be positive.

CORRESPONDENCE

DICUMAROL DOSAGE ADJUSTED TO PROTHROMBIN ACTIVITY

To the Editor:—The intelligent use of anticoagulant agents is currently restricted because determinations of prothrombin activity must be accurate and many laboratories continue to have difficulty with such determinations. Where the method used employs a standard wherein 100% activity is a relatively short time in seconds (such as 13-15 seconds), a minute difference in seconds in the result of the patient's prothrombin activity is capable of producing a serious error in anticoagulant dosage and resultant difficulty for the physician.

The San Pedro Community Hospital has for a few years used the Owren-Ware method (Ware, A. G., and Stragnell, R.: An Improved One-Stage Prothrombin Method, *Am. J. Clin. Path.* **22**:791 [Aug.] 1952) of determining prothrombin activity. This method utilizes a 100% standard that usually is 20-25 seconds. With this method, 20% activity is two to two and one-half times the control in seconds, so that prothrombin activity under anticoagulant control is maintained at 40-62 seconds, depending on the 100% control for the particular batch of thromboplastin. With the Owren-Ware method we have had very little difficulty with bleeding and have found the method the most dependable one for the accurate determination of prothrombin activity.

Prothrombin Activity, %	Dicumarol, Mg.	Prothrombin Activity, %	Dicumarol, Mg.
85-100	300	45-54	100
75-84	250	35-44	75
65-74	200	25-34	50
55-64	150	24 or less	None

1. Attach this form to chart of any patient receiving anticoagulant therapy.
2. Responsible nurse must get results of prothrombin determination by 10:00 a.m. Contact laboratory if result is not on chart.
3. If anticoagulant dosage has not been ordered in advance, consult physician at once on receipt of prothrombin determination.
4. Consult physician at once if prothrombin result is 15% or less.
5. Report at once any bleeding of gums, blood in urine, or bleeding from rectum.

Initial Dicumarol........Mg. Given at........a.m./p.m. Date.............

PROTHROMBIN SCHEDULE

Date	Per Cent Prothrombin	Dose Dicumarol	Comments
....	....	....	....
....	....	....	....
....	....	....	....
....	....	....	....

Admission Date Physician Room Number

....

Last Name First Name Middle Name Case Number

....

As pointed out by W. R. Adams (Treatment of Cardiovascular Disease with Anticoagulants, *Postgrad. Med.* **17**:1-7 [Jan.] 1955) "the first and most important contraindication to anticoagulant therapy . . . is lack of a laboratory to provide reliable prothrombin time determinations." We have attached an "anticoagulant sheet" (above) to the chart of each patient receiving such therapy. This sheet instructs the nurse about anticoagulants and enables the attending physician to see at a glance what the effect of previous dosage of anticoagulant has been.

With the Owren-Ware method, I have used the following schedule for dosage of Dicumarol, so that if I am not in the hospital when the laboratory report is made, the nurse has a dosage schedule to follow. If the prothrombin activity is under 15%, the anticoagulant sheet instructs the nurse to call the attendant physician. The patient is given an initial dose in accordance with the table on admission. On the next day a somewhat smaller dose is given. Daily prothrombin determinations are begun on the third day and continued long enough so that the attending physician can estimate dicumarol dosage, and, following this, determinations are made two to four times weekly, as indicated. If a given dose has a more pronounced effect than usual, the table can easily be modified. In four years I have had very little occasion to change the dosage as scheduled. The foregoing remarks have been applied only to the Owren-Ware method with only Dicumarol used as the anticoagulant.

Robert G. Lehman, M.D.
Department of Medicine
San Pedro Community Hospital
San Pedro, Calif.

PREVENTION OF FOGGY GLASSES

To the Editor:—Most doctors who wear glasses have had trouble with steaming or fogging of the glasses during surgery. At a recent surgical meeting, the number of surgeons present who wore glasses exceeded 35%. Thus the scope of the problem can be readily appreciated. Several different devices have been recommended for the prevention of foggy glasses. Specially shaped lenses, a molded wire in the upper portion of the mask, and Scotch tape or adhesive tape to fasten the upper portion of the mask to the bridge of the nose have all been recommended. However, the most convenient method of preventing foggy glasses would seem to be the use of an antifog preparation applied to the lenses of the eyeglasses. Preparations of this type come in the form of a paste, stick, and liquid, and recently an excellent preparation was introduced in a pressurized can. This last preparation is sprayed on the lenses and used as a combination cleaner and antifog compound. One application of an antifog preparation usually lasts several days. It is easy for each surgeon to have a jar, bottle, or can of some antifog preparation on his dresser at home for the routine care of his glasses. It is also suggested that an antifog preparation be placed above the scrub sink in each hospital, so that nurses and infrequent operators may use it. Antifog preparations can be obtained from any large optical company.

Clyn Smith Jr., M.D.
Cass Street at Carmelita Avenue
Monterey, Calif.

MEGARECTUM

To the Editor:—On several occasions I have observed the clinical picture of megarectum described in the July 9 issue of The Journal, page 828, but I think that it is a result of the increased pressure of the enema in the intestinal loop when there is an obstructive lesion in a proximal portion. I recently examined a patient with sigmoid carcinoma after a month of radiation therapy. Prior to this treatment the obstruction was severe and it was very difficult to give the enema; the rectal ampulla was very large. After the treatment the obstruction was less severe, the barium flowed more freely, and the ampulla was of normal size. Schinz in the section on carcinoma of the colon in "Lehrbuch der Röntgendiagnostik" twice describes this condition and refers to mechanical causes.

Antonio Giordana, M.D.
6 Mazzini
Stradella (Pavia) Italy.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Arterenol (Norepinephrine) and Vascular Headache of the Migraine Type: Studies on Headache. A. M. Ostfeld and H. G. Wolff. A. M. A. Arch. Neurol. & Psychiat. **74:**131-136 (Aug.) 1955 [Chicago].

Arterenol in a dilution of 4 cc. of a 0.2% solution in 1,000 cc. of 5% dextrose was administered intravenously, at an average rate of 1 drop per second, on 116 occasions to 35 patients with vascular headache of the migraine type. On 93 of these occasions the headache began to diminish in 10 to 60 minutes and was either eliminated or much reduced in intensity in an average time of 82 minutes. Ophthalmic involvement in the form of conjunctival injection, tearing, blurred vision, or photophobia, was eliminated in the 36 headache attacks in which it was present. In a patient with ophthalmoplegic migraine manifested by diplopia and right sixth cranial nerve weakness, the ocular movements returned to normal and diplopia and strabismus disappeared after 70 minutes of arterenol infusion. Another patient who had ptosis of the right eyelid for 48 hours during an attack of headache was able to raise the lid normally after 90 minutes of arterenol infusion. Irritability, giddiness, and difficulty in thinking were repeatedly eliminated in the course of arterenol administration. On seven occasions in four patients with essential hypertension of moderate severity, vascular headaches were similarly eliminated. Optimal effects were noted when arterenol was given at rates that induced an average rise in blood pressure of 28 mm. Hg systolic and 9 mm. Hg diastolic. In an attempt further to elucidate the mechanism of vascular headache, the effects of arterenol and of ergotamine tartrate on deep-pain thresholds in scalp tissue were observed. When headache was terminated through the action of either one of these two drugs, the pain thresholds were raised more promptly than when the headache ended spontaneously. Arterenol, an agent with almost pure vasoconstrictor and minimal metabolic effects, thus was shown to terminate migraine headache promptly and to reverse evidence of increased tissue vulnerability more rapidly than occurs spontaneously. The authors' observations suggest that the constricting effect on relatively larger vessels and on arterioles and metarterioles terminates headache and raises deep-pain thresholds. The latter process is presumably effected by drawing a pain-threshold-lowering substance out of tissue and back into the blood.

The Influence of Advanced Congestive Heart Failure on Pulsus Alternans. J. M. Ryan, J. F. Schieve, H. B. Hull and B. M. Oser. Circulation **12:**60-63 (July) 1955 [New York].

The authors observed three patients with pulsus alternans, in whom this disorder virtually disappeared or greatly diminished with advancing congestive heart failure. Observations on these patients suggested that in severe congestive failure the ventricular filling pressure may increase to the point where it causes the diastolic stretch of the left ventricle to be more equal from one beat to the next. This in turn would bring about more uniform systolic ejections and hence ventricular alternation would disappear or be lessened in degree.

The Relationship Between Impaired Retinal Vascular Reactivity and Renal Function in Patients with Degenerative Vascular Disease. H. O. Sieker, J. B. Hickam and J. F. Gibson. Circulation **12:**64-68 (July) 1955 [New York].

It has been found that the retinal vessels of most patients with hypertension or diabetes fail to constrict normally when the blood oxygen tension is elevated. This impairment of retinal vascular reactivity has been correlated with a decrease in the cerebral blood flow and cerebral vascular reactivity. The present study is concerned with further investigations on the clinical significance of retinal vessel reactivity by relating it to the state of the kidneys, as determined by common renal function tests, in normal individuals and patients with degenerative vascular disease. Studies were made on 97 hospital patients, 29 of whom served as controls. The results of the study show that impairment of retinal arterial reactivity usually occurs in the course of degenerative vascular disease, particularly in hypertension, in advance of clinical evidence of altered kidney function. When clinical tests of renal function demonstrate renal damage, loss of retinal arterial and venous reactivity is marked.

Auricular Fibrillation in Cancer of Heart. M. Joselevich and L. Sucari. Prensa méd. argent. **42:**1259-1262 (May 6) 1955 (In Spanish) [Buenos Aires, Argentina].

A clinical diagnosis of cancer of the heart is extremely difficult. The presence of auricular fibrillation has been reported in the literature as a clinical sign of cancer of the heart, either primary or metastatic. A man 46 years old requested treatment for bronchopulmonary symptoms of long duration. He complained of cough, dyspnea, marked loss of weight, spitting of blood, and pain in the right side of the chest that irradiated to the bases of the lungs. Painless and movable lymph nodes could be palpated in the inguinal, axillary, carotid, and submaxillary regions. A large number of atypical epithelial cells was found in the sputum. There was auricular fibrillation that was confirmed by the electrocardiogram. Roentgen examination of the thorax showed enlargement of the diameter of the heart and a pericardiac shadow or irregular contour. Bronchography and bronchoscopy showed a tumor in the bronchus of the middle lobe of the right lung. A diagnosis of bronchogenic carcinoma was made by bronchoscopic biopsy. There were no signs of valvular or myocardial lesion or of cardiac insufficiency. An operation was about to be performed. Anesthesia was started and immediately discontinued, as the patient exhibited marked cyanosis and acute tachycardia. The immediate complications were acute edema of lung, massive phlebothrombosis of the left internal saphenous vein, and terminal congestive heart failure. It was observed during a necropsy that the tumor originated in the lower branch of the right bronchus and diffused into the lung and the heart. The heart was buried in tumor tissue. The pathological diagnosis was bronchial epithelioma with massive involvement of the lung parenchyma, the pericardium, and the myocardium. The author urges further observations on the frequency of auricular fibrillation as a clinical sign of carcinoma of the heart.

Phentolamine in the Diagnosis and Management of Phaeochromocytoma. E. P. W. Helps, K. C. Robinson and E. J. Ross. Lancet **2:**267-272 (Aug. 6) 1955 [London, England].

Three cases of pheochromocytoma are described in two women aged 32 and 22 years, respectively, and in a 26-year-old man. Phentolamine hydrochloride was used as an adrenolytic agent for a diagnostic test; 5 mg. of the drug given intravenously caused a drop of blood pressure from hypertensive to normal levels in all three patients. This response to the test supported the diagnosis of pheochromocytoma, which was confirmed by bio-assay of the patients' urine for pressor amines. A pheochromocytoma was removed from the right adrenal gland in each of the three patients. The operation was greatly facili-

---

The place of publication of the periodicals appears in brackets preceding each abstract.

Periodicals on file in the Library of the American Medical Association may be borrowed by members of the Association or its student organization and by individuals in continental United States or Canada who subscribe to its scientific periodicals. Requests for periodicals should be addressed "Library, American Medical Association." Periodical files cover 1946 to date only, and no photoduplication services are available. No charge is made to members, but the fee for others is 15 cents in stamps for each item. Only three periodicals may be borrowed at one time, and they must not be kept longer than five days. Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

tated by the administration of phentolamine hydrochloride. Blood pressure readings were taken at intervals of one minute in the course of the surgical intervention. A sharp rise of blood pressure occurred during the induction of anesthesia in the male patient but was readily controlled by the administration of 5 mg. of phentolamine intravenously. In the other patients, this pressor response to the induction of anesthesia was prevented by the administration of 5 mg. of phentolamine before the induction of anesthesia. Supplementary doses of 2 mg. to 10 mg. of phentolamine (up to a total dose of 55 mg. in one patient) were given in the course of the surgical intervention, particularly during handling of the tumor. Administration of phentolamine should, as a rule, not be continued after clamping of the adrenal vein, since the blood pressure may drop profoundly after that. After the removal of the tumor, blood pressure was maintained by the administration of arterenol. The administration of relatively large amounts of phentolamine did not appear to interfere with the pressor effect of intravenously infused arterenol during the later stages of the operation, although this was not always so in some cases reported by other workers. In one of the two women, the blood pressure dropped from 120/90 mm. Hg to 90/70 mm. Hg 14 hours after the removal of the tumor and death occurred despite blood transfusion and administration of arterenol and hydrocortisone. Autopsy revealed a large amount of blood in the peritoneal cavity and a large retroperitoneal blood clot. The bleeding point was the adrenal vein, from which the ligature had slipped. Close watch of the patients is necessary during the early postoperative period, since the blood pressure may fall suddenly and unexpectedly some hours after the arterenol infusion has apparently become unnecessary. The intravenous phentolamine test is a simple and safe routine method of differentiating pheochromocytomas from other forms of hypertensive disease. Some false positive and false negative reactions to this test occur. It should be used as a screening test in conjunction with bio-assay of the urine for pressor amines. The effectiveness of phentolamine in controlling excessive rise of blood pressure during surgical removal of the tumor was shown in the authors' patients.

Asymptomatic Bronchogenic Carcinoma. R. P. McBurney. J. Tennessee M. A. **48**:283-285 (Aug.) 1955 [Nashville, Tenn.].

Asymptomatic cases constitute about 2% of the total of proved cases of bronchogenic carcinoma, as shown in a series of 1,600 proved cases of which 29 were asymptomatic. Physical examination in these asymptomatic cases is usually negative, as are bronchoscopy and cytological studies of sputum. All 29 cases were discovered through x-ray examinations of the chest. The majority were adenocarcinomas and large cell carcinomas; they were usually located peripherally. Results of treatment of these patients with no symptoms were somewhat better than for the patients with bronchogenic carcinoma as a whole but were not so good as hoped for. The higher resectability rate (100%) makes the over-all picture of asymptomatic lesions brighter but does not improve the prognosis in any individual case. Early diagnosis remains the one method whereby more patients with bronchogenic carcinoma can be cured. A chest x-ray every six months for all males over 40 years of age would materially aid in this situation.

Regional Enteritis: Problems in Its Management. J. A. Bargen. Wisconsin M. J. **54**:367-374 (Aug.) 1955. Madison, Wis.

Of 600 patients with regional enteritis admitted to the Mayo Clinic between 1912 and 1949, 336 were between the ages of 16 and 30 years; the disease began at the age of 4 years in only two patients and between the ages of 70 and 74 in three. Regional enteritis occurs mainly in young adults and is characterized clinically by abdominal cramps, diarrhea, fever, loss of weight, anemia, perianal abscesses, and fistulas. Of the 600 patients, 402 underwent surgical treatment, including partial exclusion, complete exclusion, resection, and ileostomy. Of 400 patients who survived the operation, 135 did not have recurrence of the disease. Another group of 135 patients had recurrence of regional enteritis; the disease appeared within six months after the operation in 49 patients and within the next six months in 32. From then on, increasingly fewer patients had recurrence, so that only one patient had a recurrence 15 years after the operation. Of 203 patients who had primary resection, 125 (62%) had a recurrence. A subsequent recurrence rate of 81% was noted among 61 patients who had recurrent regional enteritis and underwent a second surgical procedure. Regional enteritis tends to be a relentlessly progressive intestinal inflammatory process; thus, removal of the diseased segment frequently does not accomplish the desired end. It is a disease associated with such complications as fistulas and abscesses in the abdomen, obstruction, massive hemorrhage, anemia, deficiency states, disturbances of growth and development, ischiorectal abscesses and rectovaginal fistulas, and arthritis. Whereas at one time regional enteritis was thought to be primarily a surgical disease, surgical intervention now is limited largely to complications, but not all complications become surgical problems. The average patient is now treated nonsurgically. The use of sulfonamides such as phthalylsulfathiazole (Sulfathalidine) and salicylazosulfapyridine (Azulfidine), a high protein diet, administration of vitamins, and attention to the fluid balance and satisfactory nourishment are of great importance. In the author's experience, roentgen therapy has been a helpful therapeutic measure; 130 kv. to 200 kv. were used and the anterior abdominal wall was blocked off into four fields that were irradiated in four days with a dose of 133 r applied to each field, provided the patient was in comparatively good condition. Otherwise, the treatment was divided into half sessions. Seven cases are described to illustrate some of the complexities of regional enteritis.

Malignant Phaeochromocytoma with Functioning Metastases. P. Davis, W. S. Peart and W. van't Hoff. Lancet **2**:274-275 (Aug. 6) 1955 [London, England].

A case of malignant pheochromocytoma is described in a 46-year-old man in whom paroxysmal hypertension persisted after surgical removal of the pheochromocytoma from the right adrenal gland. Persistently high arterenol excretion in the urine, as well as the intermittent hypertension, suggested that there was still an abnormal source of pressor amines in the patient's body. A second laparotomy was performed, but no evidence of another tumor was found. The patient gradually deteriorated and died. Autopsy revealed extensive metastases in the ribs, sternum, skull, lungs, pleurae, mediastinal lymph nodes, and liver. The left adrenal gland was normal, and on the right side the cortex was normal, but no medullary tissue was found. Microscopic appearances of metastases in the liver and a lymph node were identical with those of the primary pheochromocytoma; 18 gm. of metastatic tissue were examined and found to contain 20 mg. of pressor amine of which 90% was arterenol. The content of arterenol in the metastatic tumor, therefore, was well within the range found in primary pheochromocytoma. The metastases must have been actively secreting since the urinary excretion of pressor amines had remained high. A persistently increased quantity of pressor amines in the urine after removal of a pheochromocytoma suggests either the presence of a second primary tumor or that the original tumor was malignant and that metastases had already developed. Routine postoperative estimation of pressor amines in the urine is advocated. If, in the absence of clinical or radiographic evidence of metastases, the quantity of pressor amines in the urine is observed to be raised, it would seem reasonable to search for a second pheochromocytoma. If no second tumor is found, a guarded prognosis should be given since dissemination may already have occurred.

Fatal Pancreatitis. R. J. Healey, J. F. Sullivan and W. A. Knight. South. M. J. **48**:838-841 (Aug.) 1955 [Birmingham, Ala.].

Forty-two cases of fatal pancreatitis taken from autopsy records of the St. Louis City Hospital during the five year period from 1949 to 1954 were reviewed. They were divided into three groups. Group 1 included 21 cases in which pancreatitis was thought to be the primary disease and the cause of death. The 14 cases in group 2 had other pathological findings, but acute pancreatitis was considered a contributing or major cause of death. The associated diseases were renal insufficiency with uremia (five cases), malignancy (four cases), and advanced cardiovascular disease (five cases). Group 3 consisted of seven cases of postoperative pancreatitis, five following gastric surgery, one after cholecystectomy, and one following partial pancreatectomy. Abdominal pain, anorexia, nausea, and vomiting were usually the main symptoms in the patients in whom the pancreatitis was the major disease process; but, when gastrointestinal symptoms were absent, mental confusion, disorientation, or coma were the prominent findings on admission. Melena occurred in 3 of the 21 cases. In the associated disease group, abdominal pain, nausea, and vomiting were not so prominent. In the postoperative group, pain was the most significant feature. Malnutrition, biliary tract disease, complicating medical disease, and unknown factors associated with surgery seem to be contributing factors in the pathogenesis of fatal pancreatitis. In half of the 42 patients, pancreatitis was not diagnosed during life. The authors feel that the importance of diastase determinations cannot be overemphasized. In 14 of the undiagnosed cases, the diastase values had not been determined. In nearly all cases in which diastase values were determined and were found to be elevated, the diagnosis was made. Disorientation or mental changes not usually recognized as a feature of pancreatitis occurred in 38% of the cases and suggest that pancreatitis should be suspected in all acutely disoriented patients. A history of alcoholism was present in one-third of the pancreatitis cases. The true incidence of alcoholism was not obtainable because of the mental confusion that was a prominent feature in many cases. Shock that became fatal occurred in over 50% of the cases reviewed. Some studies suggest that a circulating trypsin or proteolytic product affecting the various tissues and their function may be responsible for the shock. It is impossible to be sure what part fatty liver may have played in the deaths. The blood sugar was elevated in 13 of the 14 patients in whom it was determined. In the patients in whom pancreatitis was recognized, treatment consisted of the administration of fluids and electrolytes, gastric suction, antibiotics, antispasmodics, or anticholinergic drugs, sedation, Demerol, and in a few cases morphine. The treatment in the undiagnosed cases was usually symptomatic and inadequate.

Mephenesin and the Combination of Mephenesin and Chlorpromazine in the Management of Tetanus: Report of 100 Cases. J. Adriani and M. Kerr. South. M. J. 48:858-862 (Aug.) 1955 [Birmingham, Ala.].

The authors review observations on 100 patients with tetanus who were admitted to the Charity Hospital, New Orleans, between February, 1951, and August, 1954. Patients are treated at once with antitetanic serum, penicillin, and a sedative, usually phenobarbital. The wound of entrance is débrided, and, if the patient is unable to swallow, a Levin tube is introduced. A tracheotomy is performed, unless the spasms are mild and cause little obstruction. One group of surgeons performs a gastrostomy to obviate the possibility of regurgitation and aspiration, since one difficulty is aspiration of material regurgitated around the Levin tube. One group of surgeons on the gynecologic services performs a radical hysterectomy when the disease is due to postabortal infection. Patients are kept in a semidarkened room. Oxygen is administered by nasal catheter. A suction machine is available at the bedside for aspiration of secretions from the pharynx and the tracheotomy cannula. A tracheotomy set is placed at the bedside when the general condition of the patient does not warrant the procedure on admission. The authors gained the impression that, irrespective of the therapy and care given patients with tetanus, a certain number will die. Since the advent of muscle relaxants, emphasis has been placed upon the beneficial effects of these drugs. They have contributed somewhat to the reduction in mortality rates and shortening of the period of illness, but their value and benefits have been overrated. Tracheotomy seems to be a factor in the reduction of mortality. The mortality rate for the entire group analyzed here was 32%. It was 17% in the children under 12 years of age. The portal of entry had little relationship to the outcome with two notable exceptions; cases due to postabortal infection showed a mortality of 50%, and those due to umbilical cord infection a mortality of 66%. Sedation and anticonvulsive therapy were effectively maintained with mephenesin, phenobarbital, or secobarbital. Chlorpromazine was used in 11 cases. When used in conjunction with mephenesin or the barbiturates or a combination of the two, chlorpromazine appeared to be a valuable adjunct that enhanced the effect of these drugs without circulatory or respiratory depression. The combination of chlorpromazine with mephenesin and the barbiturates is worthy of further clinical use for more exact evaluation.

Serum-Sickness and Local Reactions in Tetanus Prophylaxis: A Study of 400 Cases. N. H. Moynihan. Lancet 2:264-266 (Aug. 6) 1955 [London, England].

Of 7,580 persons who were given antitoxin injections for prophylaxis against tetanus in three different hospitals in England, untoward reactions occurred in 401 (5.3%). Two of the 401 persons had anaphylactic shock, 205 (2.7%) had a local reaction at the site of test or injection or both, 192 (2.5%) had serum-sickness, one had a thermal reaction, and one had peripheral neuritis of the Erb-Duchenne type. The incidence of reactions was highest in children and diminished with age. It was higher in the second half of the year than in the first. Of the 909 persons who were known to have had a previous foreign serum injection or thought that they had had one, 52 (5.7%) had serum-sickness as compared with 2.5% in the series as a whole. In some of the 401 persons the untoward reaction was severe enough to require hospitalization; and even when there was nothing more than erythema and itching at the injection sites the irritation and annoyance caused was usually out of all proportion to the original wound. In all casualty departments there should be written rules laying down, for casualty officers, nurses, and dressers, the procedure to be adopted before administering tetanus antitoxin. All patients should be asked whether they have previously had an injection of serum and, if so, whether they had any kind of reaction. Inquiries should always be made about asthma, hay fever, or other allergic disorders in the patient or his family. The patient must be warned about the reactions that may occur and told that if he has any of them he should return for treatment. In the patients reported on, the reactions were treated with antihistamine drugs and usually subsided within four days. None lasted more than 12 days.

Consideration on the Agammaglobulinemic Syndrome. A. Rossi-Espagnet and M. Capone. Policlinico (sez. prat.) 62:766-772 (June 6) 1955 (In Italian) [Rome, Italy].

Agammaglobulinemia was described a few years ago by Bruton as a condition characterized by repeated infections, mainly of the respiratory system, and complete absence of gamma globulins. Recent studies have shown, however, that the gamma globulins are not entirely missing but that they are present in such small amounts that it is possible to demonstrate them only with the most sensitive immunologic techniques. On the basis of these studies, the term agammaglobulinemia is incorrect, but it is suggested that it be kept to differentiate this syndrome from the hypogammaglobulinemia that is observed in the course of nephrosis, malnutrition, and other conditions. The main clinical manifestation in patients with agammaglobulinemia—recurrent bacterial infection of the respiratory system mainly—is almost certainly the result of the absence of gamma globulin and especially of its antibody fraction. The pathogenesis of this anomaly is still not known. It appears that there are two types of the disease, one congenital or idiopathic present in early infancy, the other acquired or secondary to diseases of the lymphatic tissue and the reticuloendothelial system, present in adult life. Because the pathogenesis is still unknown, treatment can be symptomatic with regard to the recurrent infection and of substitution with regard to the gamma globulin deficiency. The combined administration of antibiotics and gamma globulins gives good results. The authors report the occurrence of agammaglobulinemia in a patient with chronic leukemic myelosis. They could not use gamma globulins, but blood transfusions aimed at treating the primary disease caused complete disappearance of fever and the temporary appearance of gamma globulins on the electrophoretic tracing.

Precipitation of Ventricular Arrhythmias Due to Digitalis by Carbohydrate Administration. E. Page. Am. J. Med. 19:169-176 (Aug.) 1955 [New York].

Of 37 cardiac patients who were being treated with digitalis glycosides, ventricular arrhythmias were precipitated by the administration of carbohydrate orally or intravenously in 7 at or near the point of digitalis intoxication. Ventricular premature beats were shown by electrocardiograms in 6 of these patients and ventricular tachycardia in one. This effect is ascribed to the well-established lowering of the potassium concentration of arterial blood after carbohydrate administration, although no concomitant analyses were made by the author. The precipitation of fatal ventricular arrhythmias is the cardinal hazard of digitalis therapy. The demonstration that such arrhythmias can be brought out or aggravated by oral or intravenous carbohydrate administration is therefore of some importance. This is true in the patient nauseated from digitalis overdosage, for whom infusions of dextrose in water are often the principal means of sustaining adequate nutrition while nausea and vomiting persist. It applies equally to the decompensated patient with a recent myocardial infarction in whom the delicate balance may be upset in favor of ventricular fibrillation by a digitalis-induced ectopic rhythm. If it is true that the arrhythmias described in the author's patients represent aggravation of digitalis toxicity as a result of a drop in the plasma potassium secondary to fluctuations in the blood sugar level, prophylactic administration of potassium salts with oral or intravenous administration of carbohydrate, and avoidance of excessive blood sugar fluctuations by restricting highly refined carbohydrate in the diet would seem logical measures. It must be emphasized that no evidence for their efficacy is available from the author's study. Further investigation of this phenomenon seems indicated.

SURGERY

Cholesterol Pericarditis: Successful Treatment by Pericardiectomy. O. Creech Jr., W. M. Hicks Jr., H. B. Snyder and E. E. Erickson. Circulation 12:193-198 (Aug.) 1955 [New York].

Pericardial effusion with a high cholesterol content is usually associated with myxedema. Tuberculosis and hemopericardium have also been considered of causative significance in cholesterol pericarditis. A case of chronic constrictive cholesterol pericarditis is described in a 32-year-old man whose history was entirely negative for tuberculosis, chest trauma, or symptoms suggestive of hypothyroidism. Pericardial aspiration yielded a turbid, red-orange fluid that contained many erythrocytes, epithelial cells, and cholesterol crystals. The removed fluid did not suggest hemopericardium. Smears and cultures of the fluid were negative for miscellaneous organisms as well as for acid-fast bacilli. Pericardiectomy was performed with complete relief of symptoms. Microscopic examination of the resected pericardium revealed in a dense hyalinized fibrous connective tissue aggregates of slit-like spaces resembling cholesterol clefts, few giant cells of the foreign body type, many foam cells, and some lymphocytes and plasma cells. Microscopic examination failed to disclose any changes indicative of tuberculosis. Experiments carried out in dogs by other workers suggested that lipids in high concentration within the pericardial sac may produce constrictive pericarditis. In view of these experimental findings it is postulated that a high cholesterol content of the pericardial fluid was responsible for the constrictive pericarditis in the authors' patient. The factors responsible for the accumulation of cholesterol within the pericardial sac are not apparent.

Severe Pulmonary Disease Subsequent to Zenker's Diverticulum. L. E. Hawes and J. H. Walker. New England J. Med. 253:209-212 (Aug. 11) 1955 [Boston].

A Zenker diverticulum (pulsion diverticulum of the esophagus) is a hazard to patients confined to bed during convalescence from surgery or from any disease. Such patients are less able to cope with the regurgitation of fluid into the throat when unconscious or asleep, and severe paroxysms of coughing and choking may ensue. The two patients with advanced pulmonary lesions reported in this paper emphasize the importance of an esophageal examination since a Zenker diverticulum was demonstrated in each. Suppurative and lipid pneumonia resulted from spillage of material from the high esophageal diverticulum into the trachea. In the first patient, a 62-year-old woman, a preoperative presumptive diagnosis of lung tumor had been made, and she was known to have a Zenker diverticulum before the resection, but its importance was not recognized. During convalescence from the lobectomy, while she was inactive in bed, the secretions from the diverticulum caused difficulty in breathing and coughing. An emergency second and later a third operation, while she was recuperating from the lobectomy, were necessary to give symptomatic relief. In the second patient, a 52-year-old man, a large Zenker diverticulum was not recognized as the cause of the patient's pulmonary disease until it was too late to remove it or to treat the extensive suppurative pneumonia. He had had an upper lobe resection, followed in two years by the same destructive suppurative pneumonia throughout the remaining lower lobe. The disease was localized on x-ray examination to the left side, but it was found that he slept on this side, and his secretions therefore flowed into that side when he was asleep. On postmortem examination, however, pinpoint abscesses were also found in the opposite lung. Zenker's diverticulum is amenable to surgical removal. The authors emphasize that in any operation on a pulmonary lesion of unknown etiology the absence of primary esophageal disease must be ascertained by fluoroscopy with barium. Zenker's diverticulum not only may lead to lipid pneumonia with bronchiectasis and suppurative pneumonia but also is a definite hazard during inhalation anesthesia and to any bedridden, inactive patient. The emergency removal of a Zenker diverticulum may be necessary in any convalescent patient who is embarrassed by severe coughing and choking from the material spilling from the sac. It is believed that Zenker's esophageal diverticulum is caused by the protrusion of the esophageal mucosa through a weak point in the esophageal wall posteriorly just below the pharyngeal esophageal opening. A sac protrudes into the soft tissues posteriorly, usually at the level of the third and fourth cervical segments. The patient may recognize the mass in the neck and realize that it enlarges with swallowing and can be reduced manually.

Joint Disorders As Early Symptom of Bronchial Carcinoma: Aspects of Hypertrophic Pulmonary Osteoarthropathy (Bamberger-Marie Disease). P. Ricklin. Schweiz. med. Wchnschr. 85:764-767 (Aug. 6) 1955 (In German) [Basel, Switzerland].

Ricklin feels that it is not widely enough known that joint symptoms, often in the form of hypertrophic pulmonary osteoarthropathy (Bamberger-Marie disease), are occasionally the first symptom of bronchial cancer. Three such cases were observed among a total of 108 patients with bronchial carcinoma seen in one year at the University Clinic in Zürich, Switzerland. The first of these patients was a 49-year-old man who showed the typical picture of hypertrophic pulmonary osteoarthropathy, which is characterized by swelling and painfulness of the knee, foot, elbow, and finger joints; by clubbed fingers and toes with hourglass nails; and by ossifying periostitis of the long tubular bones, usually combined with diffuse osteoporosis. It was found that adenocarcinoma of the lower lobe of the left lung was the cause, but clinically the joint lesions were the most evident, and the patient had been treated for 10 months for chronic polyarthritis, until pressure symptoms in the thorax finally led to the discovery of a pulmonary tumor and thereby also suggested that the joint symptoms were a manifestation of the Bamberger-Marie syndrome, which diagnosis was confirmed by the roentgenologic demonstration of ossifying periostitis on the long tubular bones. The clubbed fingers had been overlooked by the physician as well as by the patient. When the tumor was finally discovered, it had already spread by the lymphogenic route to the hilar and paratracheal lymph nodes, so that radical surgical treatment was no longer possible. The second of the three cases was similar to the first one, but the third case proves that articular symptoms that do not present the complete picture of Bamberger-Marie syndrome may also appear as the first symptom of bronchial carcinoma. The articular symptoms usually appear several months before the first signs of bronchial carcinoma. Polyarthritic symptoms in men over 40 should make the examiner think of bronchial cancer, and the lungs should always be subjected to a thorough examination in such men.

Lipoblastoma (Hibernoma): Two Cases. E. Chapadeiro. Rev. Assoc. med. brasil. **1**:375-382 (Dec.) 1954 (In Portuguese) [Rio de Janeiro, Brazil].

Lipoblastoma is rare. The 16 cases reported in the literature are analyzed and 2 new cases are added. Only 13 of the 16 cases in the literature were lipoblastomas. The remaining three were a sarcoma, a liposarcoma, and an atypical lipoma. The subjects of this report, a girl of 12 and a woman of 20, exhibited a small hard painless movable tumor in the skin of the scapular region and of the infraclavicular fossa respectively. In the child, the tumor seemed to be congenital, as it was observed for the first time when she was 5 years old. When the child became 10 years old the tumor started growing. It reached the size of an orange within nine months. The tumor was removed but reappeared nine months later near the operative scar. It started growing once more and was removed with ample resection of the skin and subcutaneous cellular tissue. It reappeared four months later, began to enlarge, and was removed by a wide resection. It did not reappear. The tumor of the woman appeared when she was 20 years old. It was removed and did not reappear. In the cases reported by the author, as well as in those in the literature, the course of the tumor has been similar to that of a benign blastoma. The tumors are encapsulated and easily removed. They grow slowly up to the size of an orange in about one year. They do not undergo malignant transformation or give metastases. Cases were reported in children and in adults, but not in elderly persons. Histologically the tumor is made up of embryonic fat cells, which makes easy a differential diagnosis between the tumor and Flemming's atrophy with proliferation of fat tissue, lipophagic granuloma, and cyto-fatty necrosis. The names hibernoma and glandular lipoma, sometimes given to lipoblastoma, do not reflect the actual origin of the tumor from embryonic primary fat tissue in several structures of the body.

Primary Neoplasms of the Liver in Infants and Children. G. B. Packard and H. D. Palmer. Ann. Surg. **142**:214-227 (Aug.) 1955 [Philadelphia].

Case reports of nine young children with hepatic tumors are presented. Six of the lesions were malignant neoplasms, two were benign neoplasms (hamartomas), and one was a cyst secondary to trauma. None of the five patients with primary liver cell carcinoma, all of whom were operated on, has survived for more than 22 months after operation, although removal was considered adequate in two. The three benign tumors of large size threatening life were successfully treated surgically and the malignant angiosarcoma apparently disappeared under roentgen therapy. Primary liver neoplasm in children is seen to be a rare entity when it is considered that these nine cases, one of which is not a primary neoplasm but presented as one, were found among 126,000 admissions to a pediatric hospital over a 14 year period. Primary liver cell neoplasms in children are almost always malignant. They may arise from the parenchyma cell or from the duct cell, or may be of combined liver-cell–cholangitic origin, and occur characteristically without cirrhosis. Malignant tumors primary in the liver but not arising from specific hepatic elements occur rarely, though there was one such in this series (the angiosarcoma). Benign neoplasms in the liver in children are usually not of liver cell or duct cell origin. All liver tumors should be considered primarily as surgical problems, and wide resection of them should be performed whenever possible. Surgical removal of tumors of the liver in infants and young children is mandatory wherever possible, without regard to size of the tumor. Where removal is not possible, biopsy is indicated, so that radiosensitive neoplasms may be detected. Limited biopsy may not give a true sample of the whole tumor structure. It must be considered that some tumors may be removed in a premalignant stage, and it is even reasonable to suppose that some primary liver-cell carcinomas may be successfully removed, as has been reported in older patients.

Long-Term Results of Gastrectomy for Gastric and Duodenal Ulcers. H. Welti, G. Mondet and S. Schneider. Presse méd. **63**:1089-1090 (Aug. 6) 1955 (In French) [Paris, France].

In a series of 171 gastrectomies for peptic ulcer the operative mortality was only two patients (1.17%). The resections were all carried out by one surgeon using one technique and they were substantial, including the lower two-thirds of the stomach. Two patients died long after operation of causes unrelated to ulcer disease, and they were reported to have had good digestive function after the operation. Of the other patients, 118 could be followed up on a long-term basis. It was found that 78% of them had excellent results, 14% good results, and 8% poor results. The majority of the patients who did not answer their follow-up questionnaires were probably satisfied with their results. Three of the 10 patients with poor results were reoperated on and obtained satisfaction. The aim of this article is to point out this large proportion of ulcer patients truly benefited on a long-term basis by gastrectomy in an era when most writers mention only those in whom the operation has been a failure.

Multiple Ruptured Lumbar Discs. *R. B. Cloward.* Ann. Surg. **142**:190-195 (Aug.) 1955 [Philadelphia].

The author inaugurated the use of discography in addition to myelography in the examination of patients with ruptured intervertebral disks in 1951. In a series of 206 patients operated on since that time, 33 (16%) were found to have multiple ruptured lumbar disks. A wider use should be made of discography because degenerated disks, or a ruptured disk without herniation not diagnosed by myelography, can be demonstrated before operation and this information obviates the necessity of exploring a second interspace and the danger of removing a normal disk simply because it has a "boggy" feel. If a spinal fusion is to be done, discography will indicate whether one or two joints should be fused. The morbidity in the 33 patients in whom interbody fusion was performed on more than one intervertebral disk was higher than in those with single joint fusions. This was attributed to a longer operation and handling of four nerve roots. The end-results, however, (29 of the 33 patients relieved of all symptoms six months to four years postoperatively) would seem to justify this type of operation for multiple lumbar disk lesions.

NEUROLOGY & PSYCHIATRY

Poliomyelitis in Pregnancy, Fetus, and Newborn. T. Bates. A. M. A. Am. J. Dis. Child. **90**:189-195 (Aug.) 1955 [Chicago].

The occurrence of poliomyelitis in a 40-hour-old baby boy is reported. He was healthy at birth and was delivered by a 20-year-old mother with acute anterior poliomyelitis nine days after the diagnosis of the disease had been made. Fifty-seven cases of poliomyelitis occurring in infants less than one month old were collected from the literature. Two of the 57 infants were ill at birth. It is presumed that these two infants as well as the author's patient represented cases of transplacental infection, since the incubation period of poliomyelitis is generally held to be 6 to 18 days. Most of the infants, however, acquired their infection at the time of or after birth; this conclusion was based on the relative absence of infants ill at birth or in the first five days, regardless of presence or absence of maternal infection. The incidence of poliomyelitis appears to be increased in pregnancy. This increase may be apparent rather than real. The mortality of poliomyelitis in pregnancy is increased at term and in the puerperium; otherwise, the severity of the disease, the mortality, and the frequency of residual paralysis approximate those in the nonpregnant female. Fetal wastage caused apparently by noninfectious factors occurs, but its reported incidence has varied and appears related to severity of maternal illness. Fetal poliomyelitis is rare; it seems possible that maternal antibody crossing the placental barrier would offer protection to the fetus from the mother's infection. Poliomyelitis in the newborn infant is not rare, but passive transfer of maternal antibodies and difficulties in diagnosis in the newborn infant have made the diagnosis uncommon.

Types of Poliomyelitis Virus in Western Germany. L. Lennartz and W. Klöne. Deutsche med. Wchnschr. 80:1081-1083 (July 22) 1955 (In German) [Stuttgart, Germany].

Knowledge as to what types of poliomyelitis virus are prevalent, particularly when the disease occurs in epidemic form, is an important prerequisite for active immunization against the disease. Since 1952 the authors have attempted to type poliomyelitis virus in a large number of stool specimens and occasionally in cultures from brain and spinal cord tissues of patients who died of poliomyelitis. They found that all three types of poliomyelitis viruses occur in Germany. The percentile distribution of the different types varied from year to year. The Brunhilde type of virus seemed to be chiefly responsible for the epidemics of poliomyelitis.

Heat Stroke: Experience at the Winfield State Training School During a Record Heat Wave. S. M. Steinzeig. J. Kansas M. Soc. 56:426-429 (Aug.) 1955 [Topeka, Kan.].

The author describes observation on heat stroke at the State Training School in Winfield, Kan., during a heat wave in which the mercury rose to 106 F or higher for 14 consecutive days. More than 1,400 patients with mental deficiency, ranging in age from infancy to senescence, were cared for at the institution in question. The population included about 200 mongoloids in addition to a large group of elderly, debilitated patients and infants, all of whom could be expected to withstand heat poorly. The usual prophylactic measures were reinforced. Physical activity was restricted, and additional baths were given. The salt content of the diet was increased, and water carts were circulated several times a day. It proved difficult to get sufficient fluids into the more retarded patients, who simply did not drink unless the cup was held to their lips. In the hospital, fluids were given parenterally to those who were not drinking enough. No serious effects were observed until July 13, when the temperature reached 116 F. Late that afternoon, the first patient with heat stroke was admitted to the hospital. Before the night was over, seven more were admitted. A treatment center was organized in the hospital building. In the afternoon of July 14 the temperature reached 117 F, and new patients were being admitted at the rate of 10 to 15 an hour. July 15 was slightly cooler, and with the arrival of additional nurses it was possible to shift the treatment from the hospital more to the dormitory buildings. By making rounds several times a day, it was possible to discover and treat patients earlier, thus reducing the load on the hospital personnel. In a 14 day period, 275 persons received hospital treatment, and an unknown number were treated in the dormitories. Patients with rectal temperature below 105 F (40.5 C) were regarded as having mild heat stroke; about 250 fell into this category. In addition to hyperpyrexia and prostration, examination revealed dry, flushed skin of poor turgor, parched tongue, moderate tachycardia, and tachypnea. About 25 patients had rectal temperatures between 105 and 108 F (40.5 and 42.2 C) and were classified as having severe heat stroke. Dehydration with extracellular hypertonicity and cessation of sweating are important factors in the pathogenesis of heat stroke. Three deaths were due to acute water depletion rather than to salt depletion such as would be found in chronic heat exhaustion. Fluid should be replaced parenterally with 5% glucose in water, unless an electrolyte deficiency exists. Body temperature can be quickly reduced by wrapping patients in sheets covered by a thin layer of crushed ice.

The Actions of Reserpine. P. W. Dale. Connecticut M. J. 19:652-655 (Aug.) 1955 [New Haven, Conn.].

The effects of reserpine, a physiological substance of low toxicity, were studied in 88 patients with cardiovascular and mental disorders. With doses above 1 mg. per day, slowing of the pulse, slight lowering of blood pressure, increase in body weight, lethargy, and increased tranquility were fairly constantly observed. The intensity of these effects was proportional to the dose, but beyond a certain point for many of these actions, further increase of the dose produced little further change. Larger doses were sometimes needed to get the full psychological effect. The parallelism between the effects of reserpine observed in the author's patients and the known functions of the hypothalamus is close; reserpine mimics anterior hypothalamic function. Increased sleepiness and drowsiness suggest that reserpine has a suppressive action on the posterior hypothalamus and this suppressive action extends anteriorly as far as the ventromedial nucleus causing increased body weight and posteriorly into the reticular formation causing drowsiness and diminished alertness. In patients with chronic brain syndromes due to arteriosclerosis and senility in whom the area of the posterior hypothalamus and related structures is released from control and balance of higher centers by the disease process, reserpine suppresses this portion of the brain stem and acts directly to restore the balance and bring about reduced irritability, lessened agitation, easier sleep, and greater tranquility. In the patients with manic and anxiety states reserpine serves to suppress the prominent symptoms of these disorders, namely, hyperactivity, insomnia, weight loss, anorexia, irritability, and increased metabolic activity in the manic patients and fear, restlessness, uneasiness, rejection of food, and difficulty in getting to sleep in those with anxiety states. In patients with schizophrenic reactions, reserpine may or may not assist in controlling the symptoms. Thus, the beneficial actions of reserpine in a variety of psychophysiological disorders make sense when the neurophysiology of the hypothalamus is kept in mind.

Treatment of Intracerebral Hematomas in Young and Middle-Aged Patients. R. H. Miller, E. C. Clark and H. W. Dodge Jr. Neurology 5:567-572 (Aug.) 1955 [Minneapolis].

The authors describe observations on seven patients between 19 and 53 years of age who received surgical treatment for intracerebral hematomas at the Mayo Clinic. These hematomas were due to various causes, and the patients presented a variety of clinical data, so that it was extremely difficult to make an accurate diagnosis of intracerebral hemorrhage prior to surgical intervention. All patients recovered to some degree after operation. Two have been able to return to their previous employment. The reasons for successful treatment in patients of this age group include the absence of severe arteriosclerosis as well as of hypertension. Trauma is more likely to play a role in patients of this age range than it is in the usual instances of intracerebral hematoma. Other causes of hemorrhage, such as septicemia and endocarditis, may be found. It is impossible at times to determine the exact reason for the intracerebral bleeding. Ventriculography and arteriography should be employed to detect intracerebral hematoma in a young or middle-aged patient suspected of having a subdural hematoma but in whom no subdural hematoma is found at operation. The authors conclude that in young and middle-aged patients surgical removal of intracerebral hematomas is the treatment of choice.

PEDIATRICS

Infantile Cortical Hyperostosis: Treatment with Hormones. C. M. Pounders and C. E. Delhotal. J. Pediat. 47:157-160 (Aug.) 1955 [St. Louis].

The occurrence of infantile cortical hyperostosis is reported in a white baby girl, aged 4 months, and in a Negro baby boy, a nonidentical twin, aged 6 weeks. The onset of the disease was characterized by irritability, restlessness, and discomfort when nursing, with later development of swelling over the mandible. Fever was minimal or absent and blood counts and urinalyses were within normal limits. The ages of the patients' mothers were 26 and 31 years, respectively, and those of the fathers, 32 and 40 years. Diagnosis was confirmed by roentgen ray studies in both patients. Dentition, growth, and development were normal in the baby girl, and growth and development were normal in the baby boy. Since control of symptoms by prolonged analgesia or sedation did not seem practical or safe, hormone therapy to relieve the disability and discomfort appeared to be justified. The response of the baby girl to cortisone in doses of 5 mg. four times daily was almost immediate, but attempts to reduce the daily dosage produced recurrences. The patient was changed to hydrocortisone therapy to minimize the possibility of side-effects, and she required the same dosage of this drug as of cortisone. The course of the disease was not shortened though the symptoms were controlled. When last seen after six months of hydrocortisone therapy, the dosage of hydrocortisone had been reduced to 5 mg. twice daily but could not be discontinued without recurrence of swelling and pain. The baby boy was given 5 mg. of hydrocortisone four times daily, and he too showed an immediate response to the drug. After 10 days of treatment, the patient's parents stopped it. A recurrence, though expected, did not occur up to the age of 3½ months when the patient was last seen. This suggested two possibilities, the most probable being that without treatment the patient might have had a short illness that could have passed unrecognized, as has happened in many cases. The other possibility is that the treatment actually shortened the course of the disease. Recurrences have, however, been reported following remissions lasting as long as that in this patient.

The "Pulmonary Hyaline Membrane" as a Manifestation of Heart Failure in the Newborn Infant. F. C. Lendrum. J. Pediat. **47**:149-156 (Aug.) 1955 [St. Louis].

The clinical and pathological findings in the newborn premature infant who dies of "pulmonary hyaline membrane disease" are interpreted as manifestations of failure of the left side of the heart. This explanation is based on the fact that the cardiovascular system is not yet ready to make the adjustments required for extrauterine life and that the failure to make these adjustments imposes an excessive load on a barely marginal pulmonary vascular bed. The unusual findings in this type of decompensation are explained as manifestations of the exceptional features of the newborn infant, such as the possibility of the reopening of fetal channels of circulation. If this interpretation is sound, the principles of treatment for failure of the left side of the heart could logically be included in the management of the newborn premature infant even before respiratory difficulty has appeared. Special emphasis is given to the possibility that this syndrome might be prevented if the handling and position of the baby are so planned as to avoid overloading the thoracic veins and the pulmonary circulation. In practice it would mean that, except for very brief intervals, the position of the newborn infant during the first 48 hours should always be such that any excess venous blood would accumulate below the diaphragm and not above it.

Clinical Studies with Glucagon in Children. M. J. Carson and R. Koch. J. Pediat. **47**:161-170 (Aug.) 1955 [St. Louis].

Glucagon, the hyperglycemic-glycogenolytic factor of the pancreas, was given subcutaneously in standard doses of 20 mcg. per kilogram of body weight to 32 children between the ages of 2 months and 13 years; 16 children were normal and 8 had disease of the liver, 6 glycogen storage disease, and 4 spontaneous hypoglycemia. Glucagon produced consistent elevation of the blood sugar level in the normal children. This hyperglycemic effect of glucagon could not be increased by increasing the standard dose of 20 mcg. to 40 mcg. per kilogram of body weight. Both corticotropin and epinephrine increased the hyperglycemic effect of glucagon in normal children. Comparison of the results of glucagon, insulin, and combined insulin-glucagon tolerance tests showed that glucagon counteracts insulin-induced hypoglycemia. Glucagon is of value in controlling convulsions caused by hypoglycemia. Of the eight children with disease of the liver, four with cirrhosis of the liver and one with hepatic insufficiency caused by replacement of liver cells with hamartoma cells showed an impaired hyperglycemic response to glucagon, while the remaining three patients with inspissated bile syndrome, acute hepatitis, and undiagnosed hepatomegaly showed a normal hyperglycemic response to glucagon. Of the six children with glycogen storage disease, three showed a lack of hyperglycemic response similar to that in those with cirrhosis of the liver, but the other three showed moderate increases in their blood sugar levels. Two of the latter patients showed a low hyperglycemic response to epinephrine. One patient showed an abnormal hyperglycemic response to epinephrine but not to glucagon. Although a low glucagon or epinephrine tolerance test is helpful in establishing the diagnosis of glycogen storage disease, a normal response to either test does not rule out the diagnosis. The four patients with spontaneous hypoglycemia responded to glucagon with normal hyperglycemia.

Hepatosteatosis of Toxicosis. J. Chaptal, R. Jean, Mis. C. Campo and D. Alram. Semaine hôp. Paris **31**:2468-2473 (July 10-14) 1955 (In French) [Paris, France].

Hepatosteatosis of toxicosis, whether it be the early or the late form, represents nothing more than a consequence of the prolonged metabolic derangements of toxicosis. Early massive steatosis is mainly the result of functional disorders of the hepatic cells analogous to those seen in the nervous system and the renal tubules and consequent to water and salt imbalance and the effects of this on the general metabolism. Late hepatic steatosis is caused by failure of the water and salt imbalance to correct itself and prolongation of a diet of insufficient energy value. In view of these data, it now appears that the rational treatment of the condition is prophylaxis. Hydrosaline imbalance can be corrected within 24 hours by rehydration; energy supply should be restored and antibiotics administered to obviate the intestinal infection. This program has abolished hepatic steatosis of toxicosis in the authors' pediatric service.

Treatment of Ascariasis in Children with Piperazine Adipate. M. Hanna and A. H. Shehata. Brit. M. J. **2**:417-418 (Aug. 13) 1955 [London, England].

Piperazine adipate, in tablets containing 0.3 gm., was given a therapeutic trial in 85 children between the ages of 1½ and 12 years with Ascaris infestation who were admitted to the Children's Hospital in Cairo, Egypt. Ascaris ova were found in the stools of all the patients. The following three dosage schedules were applied. 1. The first group received doses of 0.3 gm. (one tablet) daily for each year of life up to 6 years and 1.8 gm. (six tablets) daily from 6 years upward. Of 25 children to whom this dosage was given, 5 received it for seven days, 6 for five days, and 14 for three days. 2. This group received doses of 0.6 gm. daily for each year of life up to 6 years and 3.6 gm. daily from 6 years upward, that is double the dose administered to the first group. Twenty-one patients, including two failures from the first group, were treated for one day; 11 patients, including four failures from the preceding patients, were treated for two days. 3. This group received doses of 0.75 gm. daily for each year of life up to 6 years and 4.5 gm. daily from 6 years upward. Thirty-five patients, including one failure from the second group, were treated for one day. Results showed that piperazine adipate is a very effective and safe drug for the treatment of Ascaris infestation in children. The recommended schedule, especially for wide use, is a dose of 0.75 gm. for each year of life up to 6 years and 4.5 gm. from 6 years upward, to be given for one day in four equal doses at four hour intervals, after meals. The tablets were easily taken by the children whether given whole or crushed.

RADIOLOGY

Vertebral Arteriography of the Brain: Detailed Diagram of the Arterial Branches in the Fronto-Occipital Roentgen View. H. F. Plaut. Am. J. Roentgenol. **74**:226-231 (Aug.) 1955 [Springfield, Ill.].

The usefulness of arteriography of the vertebral arteries which supply the brain stem, cerebellum, and the temporo-occipital lobes has been demonstrated in reports of large series. Vertebral angiography is indicated in vascular and many space-occupying lesions suspected of involving the posterior fossa and the portions of the brain supplied by the vertebral arteries. The course of the vessels in the lateral and fronto-occipital (Chamberlain-Towne) projection of the vertebral arteriogram is described as noted in living man and the cadaver. One can compare the vessels of the right and left side in the fronto-occipital view better than in a single or stereoscopic lateral projection. However, a review of the literature did not reveal any detailed schematic drawing for the interpretation of the vertebral arteriogram taken in sagittal direction. A diagram of this fronto-occipital projection is therefore presented. The normal asymmetry of the arterial course and caliber in this view is emphasized.

BOOK REVIEWS

The Pharmacopeia of the United States of America (The United States Pharmacopeia). Fifteenth revision U.S.P. XV. By authority of the United States Pharmacopeial Convention, Inc., meeting at Washington, D. C., May 9 and 10, 1950. Prepared by Committee of Revision and published by Board of Trustees. Official from Dec. 15, 1955. Cloth. $10; $10.50 (foreign). Pp. 1178. Mack Publishing Company, 20th and Northampton Sts., Easton, Pa., 1955.

The 15th edition of the U. S. Pharmacopeia is radically changed from the 14th in scope, in style (large sections were rewritten), and in the inclusion of features that should make it more useful to the medical and pharmaceutical professions and to the enforcing agents of the Federal Food and Drug Administration. Lloyd C. Miller, appointed director of pharmacopeial revision in 1950, and his staff deserve most of the credit for the improvements in this edition. Some of the new features catch one's attention immediately, as, for instance, the inclusion at the end of individual monographs of category, dose range, and usual dose. These terms are defined on page 8, thus: "Category . . . indicates the therapeutic basis for admission of the drug to the Pharmacopeia and generally represents the best known pharmacologic action of the drug . . . [but does not] limit . . . the use of the article nor . . . indicate that it has no other kind of activity"; "Usual doses . . . are those . . . expected ordinarily to produce the therapeutic effect for which the . . . preparation is most commonly employed. Unless otherwise specified these doses are for oral administration to human adults. . . . [They] serve only as a guide to the physician who may vary them . . ."; and "Dose range . . . is intended primarily to guide the pharmacist with respect to seeking confirmation of prescriptions calling for unusually small or large doses."

The new edition of the U. S. Pharmacopeia is the first to require that inert ingredients used in formulating dosage forms must not interfere with the official assay for the drug. This requirement will greatly simplify the work of agencies concerned with examination of these drugs and, in the end, will assure the physician of more reliable drugs. "Purified water" has been substituted for "distilled water" and means deionized or distilled water for such uses as the preparation of reagents but not for the preparation of injections. Hospital laboratories preferring to use deionizing apparatus will welcome this latitude.

Of all the changes made, those in scope were the most interesting. The total number of drugs, dosage forms, and pharmaceutic necessities added was 242; the number dropped, 156. The admissions reflect trends in medical and pharmacological research in the period, 1948 to 1953. Thus, 8 antihistaminics, 25 systemic anti-infectives (4 agents for treating tuberculosis, 6 new sulfonamides or new mixtures of sulfonamides, 14 antibiotics, and 1 miscellaneous agent—methenamine mandelate), 12 autonomic drugs, 4 diagnostic aids, 11 hormones (adrenal, ovarian, pituitary, pancreatic, and testicular), 5 immunologic agents, 1 radioactive isotope (I^{131}), 1 skeletal muscle relaxant, and 5 new vitamin preparations are included. Some veterinary medicines are included for the first time in this edition. Of the 30 drugs taken from the ninth edition of the National Formulary (1950), 15 are preparations used in dermatology, a discipline that had not been represented adequately before on the U. S. Pharmacopeia Committee on Scope. The Committee on Scope this time appointed advisory subcommittees of physicians who were outstanding in their fields. The closer conformance of the 15th edition with the ideal that the Pharmacopeia should reflect "the best state of medical knowledge of the day" may be credited to this policy.

The drugs and dosage forms deleted are no less interesting than those added. Rice polishings and rice polishings extract, and ox bile extract and its dosage forms—to give typical examples—have been superseded by purer forms of the same drugs, which forms are of more easily controlled strength. Amphetamine has been supplanted by amphetamine sulfate and by dextro amphetamine sulfate; ephedrine hydrochloride, by ephedrine sulfate; and estradiol benzoate by estradiol dipropionate. The sulfonamides comparatively less soluble in urine and those giving rise to an undue number of side-reactions have been dropped, e. g., sulfaguanidine, sulfanilamide, sulfathiazole, and sulfathiazole sodium. Theobromine has been replaced by other diuretics. Dosage forms of penicillin for topical use (penicillin for inhalation, penicillin ointment, and penicillin troches) that sensitized some people or subjected them to the danger of oral infection by fungi have been omitted. Ferric ammonium citrate has been dropped, since tracer studies showed that ferric salts are reduced to ferrous forms in the body before use in synthesizing hemoglobin. Some irrational dosage forms have been deleted, and a number of empirical remedies, such as camphor liniment and potassium bromide, have disappeared.

The official titles of some drugs have been altered. The most radically changed are: Aureomycin, to chlortetracycline; and vitamin B_{12}, to cyanocobalamin. Several drugs that had been known under generic names adopted by the Council on Pharmacy and Chemistry of the American Medical Association have gone into this 15th revision under different names. The most radically different of these is vitamin K_1, which is now phytonadione. This revision contains 1,178 pages as against 1,067 pages in the 14th. The book was kept to reasonable size by using thinner paper, which unfortunately is not opaque. Otherwise, the work is produced well. As always, the index is complete. The limits and tolerances set in a few of the individual monographs and the usefulness of some of the drugs included may be questioned. A specific example of this last is calcium pantothenate, about which the Council on Pharmacy and Chemistry has authorized for publication in the 1956 edition of the A. M. A.'s "Epitome of the Pharmacopeia of the United States and the National Formulary": "A member of the vitamin B group formerly used, without effect, in achromotrichia and tried in the treatment of certain types of lupus erythematosus. The human requirements and deficiency syndrome have not been established."

Clinical Neurology. Edited by A. B. Baker, M.D., Professor and Director, Division of Neurology, University of Minnesota Medical School, Minneapolis. By 65 authors. Cloth. $60 per set of 3 volumes. Pp. 738; 739-1403; 1405-2023, with illustrations. Paul B. Hoeber, Inc. (medical book department of Harper & Brothers), 49 E. 33rd St., New York 16, 1955.

These three volumes are a great accomplishment. Most of the authors rank among the most distinguished figures in American neurology; one of the authors is from Canada and one from Norway. They have written clearly, and there can be no question as to the authoritative character of what they have said. Naturally some of the chapters are better than others. Chapters on the encephalitides by Dr. Baker are outstanding as are also those on case taking and the neurological examination by Dr. Russell N. DeJong, meningitis by Dr. A. L. Sahs, and diseases of peripheral nerves by Dr. Henry Woltman and Dr. James W. Kernohan. In some respects, however, these volumes are disappointing. They are much too long for a textbook, and they are inadequate to fulfill completely the purpose for which they were designed, that of being an encyclopedia of neurology. In such a work, one would expect to find the commonplace presented in all details, including unusual aspects, and the uncommon disorders to be similarly presented. In general, that is not the case, the discussions being much too brief. In some chapters, this summary presentation is particularly noticeable and out of keeping with the purpose of the volumes. The chief examples of such brevity are the chapters on the cerebrospinal fluid, spinal cord tumors, and protruded intervertebral disks. The chapter on psychological testing is much too vague and diffuse to be of much value. Few errors were noted. It seems doubtful that metastatic tumors are nearly as common in the cerebellum of children as in those of adults (page 401). Hypertrophic pachymeningitis of the cervical spinal cord is mentioned

---

These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

at several points and always referred to as a syphilitic disorder, which it seldom, if ever, is. One doubts that the authors of chapter 33 would attempt to inject the first division of the trigeminal nerve at the foramen ovale (page 1651) or that they would use such an injection in the treatment of postherpetic neuralgia of that nerve. No discussion of possible disorders of copper metabolism in Wilson's hepatolenticular degeneration was found, nor a discussion of hemifacial spasm. It is doubtful that Alzheimer's and Pick's diseases should be included among the intracerebral vascular diseases. The illustrations are of good quality and well reproduced, but there are not enough of them. In spite of these criticisms, this useful work will be referred to often by students and practitioners. The volumes illustrate the value of preparing encyclopedic works in loose-leaf style so that they can be constantly corrected, strengthened, and supplemented as new material develops.

Die Organpunktion in der klinischen Diagnostik. Von Priv.-Doz. Dr. med. Heinrich Lüdin, medizinische Universitätsklinik Basel. Mit einem Vorwort von Prof. H. Staub, Bibliotheca haematologica, supplementa ad Acta haemat., Fasc. 1. Cloth. 33.80 Swiss francs. Pp. 160, with 84 illustrations. S. Karger A. G., Arnold Böcklinstrasse 25, Basel, Switzerland; Albert Phiebig, P. O. Box 352, White Plains, New York, 1955.

Diagnostic tissue puncture is the analogue of biochemical micromethods. Minute quantities of tissue make it possible to make a histological or cytological diagnosis without resorting to a regular operative procedure with its hazards, or at least inconveniences. Not so long ago diagnostic punctures of marrow, lymph nodes, spleen, liver, and lung were novelties occasionally resorted to by the more adventurous physician. This is all history. Nowadays, it is recognized that diagnostic punctures are helpful in many situations and indispensable in some. They have a definite place in diagnostic methodology, along with surgical biopsy and cytological study of body fluids. The author has had much experience with tissue puncture and has developed a simple technique for demonstrating hemosiderin in smears. The subject is treated in five chapters: an introductory chapter on methodology, and then chapters on marrow, lymph node, splenic, hepatic, and pulmonary punctures. There is a good discussion on the pros and cons of smears versus histological preparations from various tissues. The author had no untoward results in 2,500 sternal marrow examinations. An interesting sidelight is a list of 13 fatal complications of sternal marrow punctures. In spite of its small size the monograph is a veritable mine of information on the technique of tissue punctures, on the methodology in preparation and study of smears and histological preparations, on the morphological analysis of microscopic findings, and, even more important, on the clinical interpretation of results. To cite just one example, 86% of 1,197 marrow punctures were clinically significant and 28% furnished a reliable cytological diagnosis. Of these, the diagnosis could not have been made without marrow puncture in 12%. Only 14% of the punctures were without clinical significance. An exhaustive and well-selected bibliography is appended. There is no index. The illustrations are all black and white. They are well chosen and excellently reproduced. This is truly a documentary in the best sense of the word. It can be recommended without reservation.

The Visual Fields: A Study of the Applications of Quantitative Perimetry to the Anatomy and Pathology of the Visual Pathways. By Brodie Hughes, M.D., B.S., Ch.M., Professor of Neurosurgery, University of Birmingham, Birmingham, England. Cloth. $7.25. Pp. 174, with 158 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, Canada, 1954.

This is a comprehensive treatise on perimetry from the neurologist's viewpoint. It presents principles of quantitative perimetry and is divided into three parts: (1) methods of perimetry; (2) anatomic principles involved; and (3) types of visual field defect encountered in different pathological states, compression, vascular diseases, and injury. By a careful evaluation of the field defects, the perimetrist should be able to identify the pathology and localize the approximate location. The book is abundantly illustrated; the paper is of excellent quality; the print is clear and distinct; and the diagrams are sharp, all of which enhance the readability of the book.

Intestinal Obstructions: Physiological, Pathological and Clinical Considerations with Emphasis on Therapy, Including Description of Operative Procedures. By Owen H. Wangensteen, B.A., M.D., Ph.D., Professor of Surgery, University of Minnesota, Minneapolis. Third edition. Cloth. $15.50. Pp. 838, with 200 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, Canada, 1955.

This new edition represents an expansion of the previous edition to include much new material. The author is one of the foremost students of the subject. Although his name has become identified with all manner of suction apparatus, a summary of the contributions of predecessors to gastroduodenal intubation is presented (page 257). John Hunter is cited as having used a stomach tube to feed a patient with paralysis of the muscles of deglutition as early as 1790. The first portion of the book, dealing with the physiology of intestinal obstruction, is an admirable discussion based on modern data. The "toxin theory" to explain deaths in patients with neglected intestinal obstruction is discounted for want of evidence. Replacement of water and correction of electrolyte imbalance are of paramount importance in the management of high obstruction that causes severe vomiting. The relief of mechanical distention is of equal importance, but the two factors obviously cannot be separated in dealing with this clinical problem. In low obstruction, vomiting is not so prominent a feature as in high obstruction, and the factor of distention assumes relatively greater importance than correction of fluid and electrolyte imbalance. "The results of this experimental inquiry are wholly in accord with those clinical observations and indicate that the chief lethal factor in simple obstruction is permeation of a gut wall, whose viability has become impaired, by bacterial and other deadly agents."

Although intestinal obstruction is the central theme and detailed discussions of its diagnosis and therapy are most thoroughly dealt with, a great deal of other information is also presented. This includes, among other things, electrolyte balance, complications of therapy, points in technique of various operations, "second look" procedures for intra-abdominal cancer, tumors of the alimentary tract (because they may produce obstruction), congenital megacolon, and certain phases of hernia. In short, this is an authoritative work, concerned in a broad sense with much of general abdominal surgery, but strongly flavored by the obstruction problem. The author's direct personal style facilitates rapid reading and immediate comprehension. The volume is profusely illustrated, and there are many tables and diagrams. An extensive bibliography is appended to each chapter. The paper is of high quality, and the type is large. Although students may read portions of the work with profit, it is primarily for interns, residents, and particularly surgeons. It should be in all libraries, both hospital and personal, because, in its field, it is one of the major contributions to current surgical literature.

Atlas of Roentgen Anatomy of the Skull. By Lewis E. Etter, B.S., M.D., F.A.C.R., Assistant Professor of Radiology, School of Medicine, University of Pittsburgh. With section on the Radiographic Anatomy of the Temporal Bone, by J. Brown Farrior, M.D., F.A.C.S., Farrior Clinic, Tampa, Fla., and section on the Roentgen Anatomy of the Skull in the Newborn Infant, by Samuel G. Henderson, M.D., F.A.C.R., Associate Professor of Radiology, and Louise S. Sherman, B.S., M.D., Instructor in Radiology, School of Medicine, University of Pittsburgh. Cloth. $14.75. Pp. 215, with 239 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 24-25 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2b, Canada, 1955.

This excellent atlas contains a minimum of subject material. Direct labeling of all structures illustrated is used and obviates the cumbersome reference to legends. This feature is highly commendable. The roentgen anatomy of the skull, including the paranasal sinuses, mastoids, and facial bones, is extremely well illustrated. The standard, universally used projections are illustrated for quick reference. An outstanding feature is Dr. Etter's original study of the disarticulated skull. The special sections by other doctors add to the value of the atlas. The identity of confusing lines and markings on skull roentgenograms can quickly be ascertained by referring to the pages of this well-organized volume. It is recommended without any reservation to radiologists, neurosurgeons, and all physicians concerned with the study of roentgenograms of the skull.

QUERIES AND MINOR NOTES

PARANOID PSYCHOSIS

To the Editor:—*A 45-year-old woman has suffered for seven years from disabling arthritis. There are no children. She has been happily married for 20 years, but during the past two years she has been abnormally jealous of her husband. He has practically ruined his business to be with his wife most of the day and has never left her in an evening since this situation began. This jealousy first occurred only occasionally and would soon pass; but the episodes have become more frequent and of longer duration. Because of her disability, she is unable to have sex relations but states that it is impossible for her husband not to. She maintains a microscopic check on his finances, and "to protect him from squandering money on women" has transferred all their joint savings and bonds to herself and her brother. The husband has made her the beneficiary of the life insurance he has to give her peace of mind. She believes that he "dopes" her at night so he can get up to meet women, that whenever he turns on a light or goes to a window he is signaling a woman, and that he carries on with a school girl who works after school in the house. While this girl is in the house he cannot leave his wife's side. She believes the phone is "tapped" and that every time the husband phones he is signaling a woman. She has violently attacked him many times, stating if he would only admit his escapades, she would understand and forgive him, but that his "holier-than-thou" attitude of constant denial is maddening. She accuses him of wanting to commit her to a state hospital but states he is in need of a psychiatrist. They each seem perfectly normal, except for the wife's fixed beliefs about her husband, which she discusses calmly and apparently with keen logic. Recently the husband's mother passed away and on each visit to the hospital, he would call her and she would call back to make sure he was really there; the same thing on leaving at the mother's funeral, a friend had to be with him so that the funeral would not be an excuse to meet a woman. On any business call, he gives her the name and address of the client, she figures how long it should take him to reach the client, and she calls him there, he must call before he leaves, and she figures the time needed to return home. He is willing, for her peace of mind, to carry on under these circumstances. Is this a psychosis, or can it be merely abnormal jealousy? Can menopause cause these beliefs? Can the shut-in life due to the prolonged illness cause it? Can the frequent use of Meperidine (for the arthritis pain) cause it? What is the prognosis?* *M.D., New York.*

Answer.—The patient has a paranoid psychosis that has existed, most likely, longer than given in the history. Meperidine (Demerol) in some cases produces a transitory, mild confusion, but not the prolonged picture of systematized delusions that is given here. The prognosis is bad without therapy. As time advances these ideas become more and more fixed. Institutionalization is necessary for the peace and protection of the family. Shock treatment, such as insulin and electroshock, can be used, as well as the new drugs, reserpine and thorazine. Section 70 of the mental health code of the state of New York provides: "Any person who is alleged to be mentally ill to a degree which warrants institutional care and is not in confinement on a criminal charge, may be admitted or confined in a state hospital or a state psychopathic hospital, or a licensed private institution." Five methods are given for admission, namely: voluntary admittance, certification of a health officer, certification of one physician, court certification, and incomplete certification to meet an emergency.

THROMBOCYTOPENIC PURPURA

To the Editor:—*What is the current treatment of thrombocytopenic purpura? A 32-year-old female patient has been getting "bruises"—subcutaneous hemorrhages—for one year that started one month after the delivery of her last baby. No cause could be elicited. Blood study shows: platelet count, 15,000 per cubic millimeter; bleeding time, 8 minutes 45 seconds; coagulation time, 5 minutes 16 seconds; prothrombin time, 15.2 seconds, control time, 13.7 seconds; hemoglobin level, 13 gm. per 100 cc.; red blood cell count, 4,640,000 per cubic millimeter; white blood cell count, 5,800 per cubic millimeter, with differential neutrophils 56, monocytes 7, and lymphocytes 37; and sedimentation rate, 2 mm. per hour.*

Francis Remy, M.D., Center Moriches, N. Y.

Answer.—Thrombocytopenic purpura is not a disease entity but rather a syndrome of varied etiology. It may occur as the idiopathic type, or it may be associated with a great variety of infectious, granulomatous, neoplastic, toxic, or allergic disorders. Since drugs may cause thrombocytopenic purpura, all medicaments—if this is feasible—should be withdrawn. It is this consultant's opinion that in all cases of thrombocytopenic purpura it is advantageous to give steroid therapy. This will result in most instances in a return of the bleeding time to normal values within a few days, although the platelet level may remain low for quite a while. Cortisone or Meticorten may be given orally. The initial dose for adults is about 200 to 300 mg. of cortisone per day; lately, Meticorten has been found to replace cortisone with great advantage since it causes less undesirable side-effects. One milligram of Meticorten may be given for each 5 mg. of cortisone. When the bleeding time has become normalized, the amount of steroids is gradually reduced to an individually varying maintenance level. If after an observation period of three months the platelet level has not returned to normal, splenectomy is recommended. This operation may be curative in about 60 to 70% of the chronic cases of this syndrome. The operation is performed under the protective effect of steroid treatment. If splenectomy has no curative effect, steroid treatment should be continued. During the application of steroid therapy, sodium intake should be curtailed and potassium chloride may be given (3 to 5 gm. per day). The patient's blood pressure should be watched, his urine periodically examined for sugar, and the possibility of the appearance of ulcerations of the gastrointestinal tract kept in mind. In all instances of prolonged steroid therapy, a weekly course of ACTH (20 units) is given each month, during which period the steroid application is stopped. This prevents atrophy of the patient's own adrenal tissues.

TYPHOID CARRIERS

To the Editor:—*1. What is the proper procedure in the diagnosis of typhoid carriers? 2. What is the treatment for a positive carrier?* *Roy D. Sumner, M.D., Rock Hills, S. C.*

Answer.—1. The typhoid carrier does not regularly eliminate the typhoid bacilli in the feces. The state is variable in that the carrier may experience periods when culture of the feces may not reveal typhoid bacilli. However, specimens of stool should be examined three days consecutively by ordinary cultural means in an attempt to isolate Salmonella typhosa. The patient's condition should not be considered normal even though three specimens have been culturally free of typhoid bacilli. Three consecutive specimens should be examined every three to four weeks for a period of six months before considering the patient culturally free of the S. typhosa. In certain instances, the passage of a duodenal tube with direct culture of the bile may reveal S. typhosa by cultural methods when examination of the stool has proved negative. 2. Sterilization of the typhoid carrier has been disappointing, in spite of the helpful effect of chloramphenicol in the treatment of the clinical illness. This antibiotic

---

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

fails to eradicate the bacilli from the typhoid carrier presumably because of its bacteriostatic mode of action. One group of investigators has made a preliminary report that appears very encouraging. By their method the typhoid carrier receives penicillin in the dosage of 12 million units daily (3 million units every six hours) and Benemid 1.5 gm. twice daily for 10 days. Presumably, the high concentration of penicillin in the tissues achieved by this method exerts a bactericidal action on S. typhosa. Results to date have been successful in about 70% of the carriers tested.

ARTIFICIAL MENOPAUSE

To the Editor:—*A 35-year-old gravida 1 and para 1 woman has had symptoms of estrogenic deficiency for five years. She responded to therapy, but three years ago she developed a monophobia, a sense of insecurity, and a severe anxiety reaction on an obsessive-compulsive basis. In October, 1954, she had a series of six nonconvulsive electrostimulations under the care of an eminent psychiatrist. She showed favorable progress until the past week, when a doctor told her all of her past therapy was mostly wasted time and money and that she should have no more shots. She has received Progynon (10 rat units) at intervals of 7 to 21 days along with Thorazine, 25 mg. twice a day. He recommended that she should have deep x-ray therapy to the pelvis and "go through the menopause all at once." Please comment.*

Charles L. Wise, M.D., Camden, Ind.

Answer.—It is absolutely unjustified to bring about an artificial menopause in this patient, particularly in view of her past history. At this patient's age a sudden menopause by surgery or irradiation may produce most disagreeable signs and symptoms. Certainly a patient who had a condition sufficiently serious to demand psychiatric therapy should not be precipitated into a sudden change of life, else perhaps more serious trouble may result. There is rarely need to deliberately bring about menopause in any woman except in those who bleed profusely at the menopausal age. Gynecologists differ as to the proper age for such treatment, but generally this is after 45 years of age. Furthermore, the menopause produced is not castration but consists of a hysterectomy. Menstruation is stopped, which is what the word menopause means. Ovarian function is not disturbed unless, of course, the ovaries are abnormal. There is no need to give this woman any more estrogens, but treatment with Thorazine will most likely help her.

REPEATED CHEST X-RAY EXAMINATIONS

To the Editor:—*A man has had pulmonary tuberculosis for 12 years, during which period he had had innumerable chest x-rays. He now insists that an x-ray of his lungs be taken every three months. For how many years would it be safe to x-ray a patient at three-month intervals and still run no risk from radiation?*

C. A. Gilpin, M.D., Rosiclare, Ill.

Answer.—If this is the only x-ray examination or treatment that the patient receives during the year, it would be quite safe to make an x-ray picture of his chest every three months. It is assumed that the target film distance is from 48 to 60 in.

SMALLPOX VACCINE

To the Editor:—*Is the vaccine of smallpox used as a living virus? Please explain the immunologic process occurring after scarification with the vaccine.*

Charles Wolf, M.D., New York.

Answer.—Smallpox vaccine is ordinarily prepared from lesions in the skin of calves. This material contains living vaccinia virus that is closely related to the virus of smallpox. On scarification of the skin of a susceptible individual, a local pox-like lesion develops and virus spreads through the skin and even into the blood, so that there is a distinct but modified and limited infection. The virus reaches the lymph nodes and other antibody-forming tissues and stimulates them to the production of antibodies and the establishment of resistance. A firm immunity appears to persist for a period of a few years, at least, provided the vaccine is in an active state at the time of inoculation and at a proper level of infectivity and antigenicity. It has been shown that a virus may be so attenuated as to produce mild lesions but only a very temporary type of immunity.

METABOLISM OF GLYCERIN

To the Editor:—*In the query on "Metabolism of Glycerin," in* The Journal *(***158***:521 [June 11] 1955), one consultant states, in part: "The use of glycerin in diabetes as a sweetening agent is not advantageous because its use in severe diabetes is no more satisfactory than that of sugar." I must take issue with this statement. In the discussion of this subject the following facts should be noted. Two authors, Catron and Lewis* (J. Biol. Chem. **84**:*553, 1929), have found that the amounts of glycogen that are formed in the liver after two hour and three hour periods of absorption of glycerol from the gastrointestinal tract were equal to those observed after the absorption of dextrose over the same periods. Two other authors, Chambers and Deuel* (J. Biol Chem. **65**:*21, 1925), have observed that a practically complete conversion of glycerol into dextrose was exhibited by two phlorhizinized dogs. It would be too far afield to discuss it, but it may be stated that no significant difference in the rates of absorption of dextrose and glycerol from the gastrointestinal tract exists. Glycerol (triose) is, therefore, quantitatively a precursor of glycogen and dextrose (hexose). The next question is: What is the influence of glycerol on glycemia? My colleagues and I* (J. Lab. & Clin. Med. **26**:*526, 1940) determined this by studying the influence on blood sugar of 80 gm. of glycerol in 10 diabetics and of 75 gm. of dextrose in 11 diabetics of comparable severity. (In the conversion of glycerol into dextrose, two molecules of glycerol yield one molecule of dextrose and four atoms of hydrogen: $2C_3H_8O_3 \rightarrow C_6H_{12}O_6 + 4H$; 80 gm. of glycerol yields 78.2 gm. of dextrose.) The results are contained in the following table. It can be readily seen that the glycemia after the ingestion of glycerol is markedly less than after the ingestion of an equivalent amount of dextrose. The greatest glycemia, and consequently glycosuria, occurs in diabetic patients during the two hour to three hour period immediately following a meal. This degree of glycemia varies even when hexoses are ingested. Thus galactose and levulose give rise to a lower blood sugar level curve than an equal amount of dextrose. Consequently the diabetic person can utilize galactose and levulose better than dextrose. This is strikingly more so with glycerol. It must be concluded that the diabetic individual has a far greater capacity to utilize glycerol than dextrose.*

Mean Concentration of Dextrose in the Blood of Diabetic Persons at the Fasting Level After the Ingestion of Glycerol and After the Ingestion of Dextrose

	Fasting Blood Sugar Level	1 Hr. Postcibal	2 Hr. Postcibal
10 patients receiving 80 gm. glycerol	201	225	253
11 patients receiving 75 gm. dextrose	193	327	359

Max Wishnofsky, M.D.
615 Williams Ave.
Brooklyn 7, N. Y.

EPILEPSY

To the Editor:—*In the Aug. 13 issue of* The Journal, *page 1405, I note a reply to a question concerning the blood cell count in epilepsy and the effect of phenobarbital and Dilantin on the blood cell count. I have reported several times observation to the effect that it is not uncommon to find a polymorphonuclear leukocytosis following a major or grand mal attack in idiopathic epilepsy. I have also reported that Dilantin often produced a leukopenia and sometimes a depression of the bone marrow in children. In Beckman's "Treatment in General Practice" (ed. 4, Philadelphia, W. B. Saunders Company, 1942, p. 756) will be found references of reports in the literature concerning the effect of Dilantin on the bone marrow. Phenobarbital rarely influences the blood cell count, but it may produce a leukopenia.*

M. G. Peterman, M.D.
411 E. Mason St.
Milwaukee 2.

THE JOURNAL
of the American Medical Association
Published Under the Auspices of the Board of Trustees

VOL. 159, NO. 10
CHICAGO, ILLINOIS
Copyright, 1955, by American Medical Association
NOVEMBER 5, 1955

PREVENTION, THE ONLY CURE FOR HEAD INJURIES RESULTING FROM AUTOMOBILE ACCIDENTS

C. Hunter Shelden, M.D., Pasadena, Calif.

The physicians of this country are up in arms against the ever-increasing number of fatalities occurring daily on our streets and highways as the result of automobile accidents. The neurosurgeons are seriously involved in this crusade because they are called upon to care for the patients in critical condition with severe head injuries. Head and neck injuries account for nearly 70% of all auto crash fatalities. In spite of the frequency of these tragedies, I have never known a neurosurgeon who has become calloused to the distasteful task of caring for a patient with a fatal head injury. Despite the endless repetition, the reaction is always the same—frustration and anger. The feeling of utter frustration stems from the realization of our own therapeutic limitations and the knowledge that the brain, once contused beyond a specific degree, presents an irreversible reaction. General supportive measures and occasionally operative relief of gross hemorrhage will save a few patients whose injury is borderline, but the severe head injury is fatal in spite of our most concerted efforts.

The loss of each patient awakens a deep feeling of anger because we allow this to continue without any concentrated effort being made to prevent its recurrence. Automobile injuries are medical problems, and we should treat them as such. The public is not aroused only because automobile fatalities are accepted as "accidental" deaths. In reality, there is nothing "accidental" about them, except that they occur during automobile accidents. Automobile accidents and automobile injuries are not synonymous terms, even though the two are chronologically related. The accidents may occur as the result of speed, inadequate highways, poor judgment, or mechanical failure, but none of these actually causes the passenger injury. The injury occurs primarily as a result of faulty interior design of the automobile. "Faulty" is actually a gross understatement, as there is almost no feature of the interior design of a car that provides for safety. The doors, seats, cushions, knobs, steering wheel, and even the overhead structure are so poorly constructed from the safety standpoint that it is surprising anyone escapes from an automobile accident without serious injury. The elimination of the mechanically hazardous features of interior construction would prevent approximately 75% of the fatalities, or 28,500 deaths each year.

Anyone who doubts this possibility has but to watch the "jalopy" races throughout the country. People are attracted to these races because of the frequent crashes that occur, and they are seldom disappointed. The accidents are numerous, bizarre, and frequently involve three, four, or more cars. Serious injuries are rare, because the potential injury-producing factors present in the average private automobile have been eliminated. Doors are welded shut, seats welded or very rigidly fixed to the frame, all projecting knobs or handles removed, and roll bars, as well as rigid interior supports, installed. The use of seat belts, crash helmets, and shoulder harnesses also protects the driver.

STATISTICAL EVIDENCE

Every driver seems to have the idea that the automobile accident is something that may happen to the other person but never to himself. The possibility of injury or death is even more remote, and he seems to have the faculty of suppressing this unpleasant thought. However, approximately 10% of all automobiles on the road last year were involved in an accident—54 million cars and 5,200,000 reported accidents. As the result, approximately 1,500,000 persons were injured; thus, your chances of injury, if involved in any type of accident, are in the neighborhood of one in three. If injured, you have one chance in 15 of receiving an injury severe enough to result in permanent total disability. Last year 100,000 persons were totally disabled. Furthermore, if injured, you run one chance in 37 of being killed; last year over 38,000 persons lost at these odds. These are rather lethal statistics to refer to a so-called pleasure car.

At this point, one may say that with all the elderly people driving, plus those with poor coordination, plus those with poor vision, it is no wonder that the figures are so high and look so serious. Would you be more apt to believe the statistics if they related only to a select driver group? Last year the United States Air Force lost 700 men killed in aircraft accidents and during the same period lost 678 killed in automobile crashes. If more statistical evidence were necessary, it might be pointed out that in the past 20 years, since 1934, more than 700,000 persons have been killed in automobile crashes. In the past 50 years many thousands more have been killed in automobile accidents than have been killed in all our wars put together. Campbell[1] states that a life is lost due to the motor car every 15 minutes around the clock day and night, and every one-half minute someone is injured here in the United States. These figures may be more significant if the mortality is compared to such publicized diseases as poliomyelitis and tuberculosis. In 1953, the deaths from poliomyelitis numbered less than 2,000, whereas the automobile fatalities numbered some 38,000. In fact, there were more deaths that year from auto crashes than from all forms of poliomyelitis and all forms of tuberculosis put together.

STRUCTURAL DESIGN AND PREVENTION

There is no doubt that the research engineering department of any one of the major automobile companies could offer design changes that would afford greater safety. In fact, the engineers have supplied valuable ideas, but these have been incorporated in present cars only to a limited degree. The reason is that the industry apparently is governed entirely by the cost accounting division. No new idea can be adopted unless it either reduces present costs or affords a sales aspect to offset additional expenditures. The industry does not believe that safety is a sales incentive. However, safety is something we all understand and desire. It is the one feature of the future automobile that the public will accept, if given the opportunity, without the need of propaganda and expensive advertising.

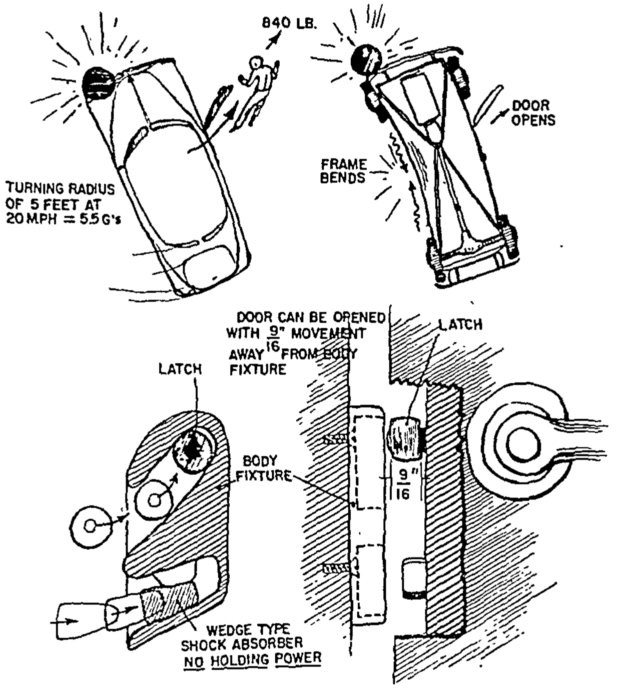

840 LB.
DOOR OPENS
FRAME BENDS
TURNING RADIUS OF 5 FEET AT 20 MPH = 5.5 G's
DOOR CAN BE OPENED WITH 9/16" MOVEMENT AWAY FROM BODY FIXTURE
LATCH
LATCH
BODY FIXTURE
9/16"
WEDGE TYPE SHOCK ABSORBER NO HOLDING POWER

Fig. 1.—Mechanics of door failures.

Neurosurgeons are not bent on criticism of the automobile industry. Our purpose is to stimulate greater appreciation of the problem and to recommend and insist upon such design changes as are necessary based upon our clinical experience. We hope our suggestions will serve to point out the structures most in need of change and stimulate automotive engineers to concentrate greater effort on the elimination of the faulty and hazardous features in design.

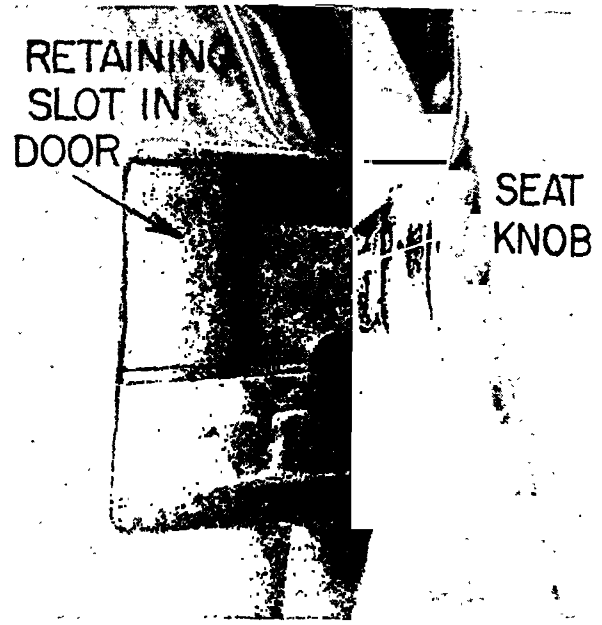


Fig. 2.—Close-up view of safety door-seat lock from behind front seat with knob fastening in retaining mechanism in door. Another view of knob on seat is shown in figure 7.

Doors.—From 25 to 35% of all automobile crash fatalities occur as the result of persons being thrown out through doors that have sprung open. The average door lock becomes disengaged if there occurs a 9/16 in. separation between the door and door frame (fig. 1). Imagine how trivial the accident need be to spring the body a little more than one-half inch. Inspect your own car door and see what a flimsy mechanism is employed to keep you from being thrown out onto the road. This is particularly true in the two-door hard-top coupé which lacks a center post on each side between the front and back seats. This style is very vulnerable to distortion of the body during a crash. The new four-door hard-top without a center post may prove to be the most lethal of all body styles because of the noticeable lack of structural stability through the midsection of the body.

The development of a method that would rigidly attach both doors to the outside edges of the front seat backs would hold the doors tightly shut and prevent the front seat backs from flying forward. If this door-seat arrangement were expanded to include a tight locking-together of the two front seat backs, a firm, side-to-side, bulkhead-like fixation would be afforded to the midsection of the car. In other words, it would be similar to a solid bar being placed across the midsection and fastened to the door on each side. Such an arrangement of door-seat lock has been developed (fig. 2). There are many ways to accomplish these same safety advantages. Our purpose in designing this method was primarily to illustrate the fact that even a medical research institute can design means of improving passenger safety. If research automotive engineers were to take up this project in earnest, one could hardly imagine the number of ingenious methods they could design for safety. Even the method shown could be installed for less money than the heater or radio, both of which have become accepted extras on most new cars.

---

[1] Campbell, H. E.: Prevention of Injuries in Airplane and Automobile Accidents, *Correspondence*, J. A. M. A. **157**: 945 (March 12) 1955.

Seats.—The seats, which serve as the only real contact between passenger and automobile, have been designed purely for comfort. There has been no thought given to safety. The front seats, particularly in the two-door cars, are a disgrace to the combined engineering staffs of the automobile industry. The fixed portion of the seat is fastened to the frame only by four small bolts, which accounts for the frequent occurrence of seat failures (fig. 3). Inspect a few cars that have been in accidents and note the high percentage of front seats that have been torn loose from their mountings.

In addition, the trend has been toward more and more mobility of the seat to allow for adjustment in all four directions. The result is the present "four-way seat." The track on which the seat slides is not constructed to withstand the forces developed during a crash. Front and back adjustment is necessary safetywise, since it allows for better control of the steering wheel and foot pedals. However, methods could be developed that would afford adequate fixation and stability. The Ford "Thunderbird" has an adjustable steering wheel. Possibly this idea could be further developed so that the seat would remain fixed and the adjustment accomplished at the floor. The entire problem of seat fixation and seat adjustment requires restudy and redesign. Seat cushions are not securely fastened, and, during sudden deceleration, they are torn loose and thrown about the interior of the car. A flying seat cushion can cause a fatal injury (fig. 4). It is absurd not to have the cushions bolted in place. They are still designed as in the days when the tools and jack were stored under the seat.

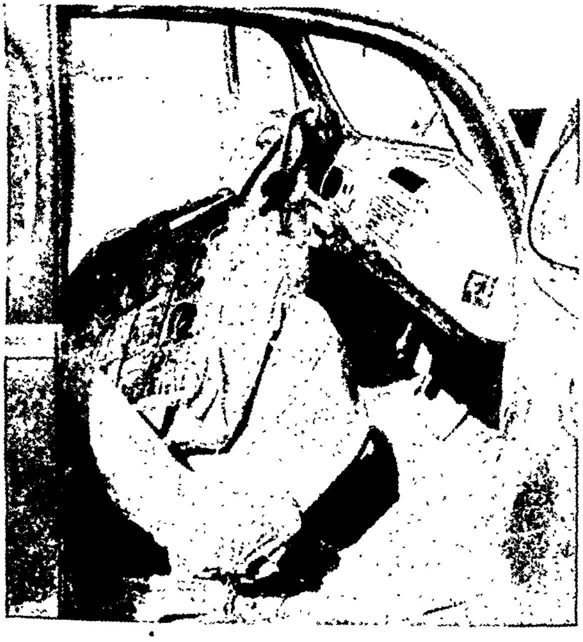


Fig. 3.—Evidence of seat failure.

Poor seat design accounts for the thousands of so-called whiplash injuries. This type of cervical spine injury usually occurs when one's car is struck from behind while waiting for a traffic signal to change. As the rear end crash occurs, one's head is thrown backwards. Since the seat back is low (for better styling), the top of the seat serves as a fulcrum over which the neck is snapped. Terrific tearing of ligaments, muscles, and muscle attachments results. Neck fractures are not infrequent. Whiplash injuries are the most disabling of all nonfatal automobile injuries. Periods of total disability lasting from one to three years are common. The frequency of whiplash injuries is difficult to estimate, but they probably occur several hundred thousand times each year. The solution is simple. The addition of a small elevated portion directly behind one's head is all that is necessary (fig. 5). It need not be high enough to support the head while driving but merely high enough to give the head support if the neck is suddenly extended (fig. 6). Thus the back of the front seat could not act as a fulcrum, since the occiput would encounter the padded rest as the neck is extended.

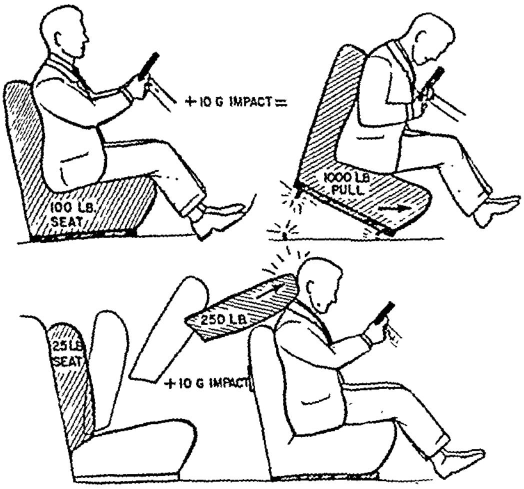


Fig. 4.—Demonstration of lethal effect of poorly secured seat cushions

Seats could be structurally improved if the backs were divided into three sections rather than two (fig. 7). Thus either outside section could be tilted forward to allow passengers access to the rear seat, and at the same time there would be a rigid middle third section into which the tilting sections could be firmly locked to prevent forward or lateral motion during a crash. In addition to the safety factor, the two outside sections could be tilted forward at the same time to allow passengers to enter from both sides at the same time. Furthermore, this arrangement would afford a middle passenger in the front seat a comfortable seat back instead of having to lean back on the crack between the seats.

Interior Projections.—There has been evidence of improvement, but every dashboard still has dangerous knobs and buttons that can easily produce serious depressed skull fractures. Few people seem to realize the terrific force with which one is thrown against the dashboard. Even at 30 miles per hour, the force can equal 176 g, which is far beyond the limit of human tolerance (fig. 8). The average rear view mirror is rigid with sharp edges. The armrests on the front door present a serious hazard. They may appear to be safe, but if one is thrown laterally against the door these projections may produce serious soft tissue injury. The Cadillac has a prominent knife-like projection just above the instrument panel. It was designed to prevent reflection of the instrument lights onto the windshield. To accomplish this minor task, they have produced as lethal a device as is seen on any American passenger car. Chrysler has added a new gear shift lever that projects straight out from the dashboard. This defies all concepts of passenger safety.

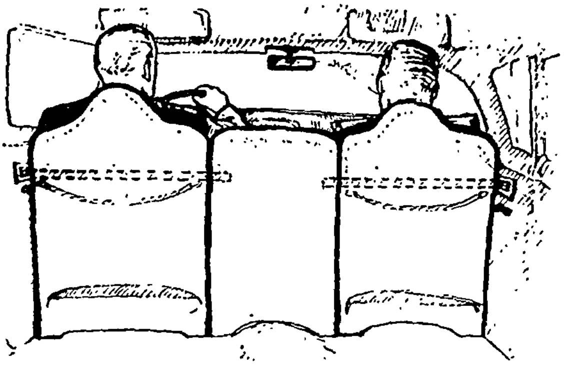


Fig. 5.—Proposed elevation of backs of front seats to prevent whiplash injuries.

Steering Wheels.—The industry has given this much thought recently, and new designs are presently being tested that should go far toward protecting the driver. The steering post type of chest injury should become a rare occurrence, provided the styling people do not put beauty before public safety. If these designs are adopted without too much delay, the manufacturers are to be congratulated.

Overhead Construction.—No stock car, to my knowledge, is equipped with any type of roll bar to prevent crushing of the passenger compartment. Fatalities from this source are not numerous, but this should not prevent the addition of such structures to every car. It would represent a small increase in the cost of the car. Certainly it is an extra that anyone would gladly accept, even at the expense of less exterior glitter. Roll bars could be incorporated in hard-top convertibles, as well as in conventional two-door and four-door cars. This would simply amount to the use of a tubular steel portion as the anterior frame of the rear windows. Thus, when the windows were up, this piece would become incorporated into the other portions of the roll bar located in the body and top. This would possibly not be as rigid as a solid bar from frame to frame but far safer than none. If roll bars were of little value, you could be sure that they would not be such a conspicuous feature in every accident-prone jalopy. These cars can be rolled over and over without serious damage to the top structure.

Seat Belts.—The use of seat belts has long been recognized as a means of passenger safety. The airlines have done much to popularize the use of belts by mak them standard equipment on all planes. Recently Chr ler has announced the adoption of seat belts in their automobiles. Seat belts at present consist of two sep rate straps securely fastened to the car frame or member. The two free ends of the belts are [illegible] across the passenger's lap by means of a strong buck When in use, the belts will withstand tremendous force and prevent the passenger from being thrown forwar against the dashboard and windshield or laterally int the tonneau or against the door during a crash. There no doubt that seat belts in passenger cars will preve many injuries and fatalities, if only the public will faste them. Most people will utilize the belts during a lon trip, but it is questionable whether they will routinel fasten them when driving in and around town.

Although we are staunch advocates of safety bel for passenger protection, it is likely that the present de sign will have to be modified before *they gain universa* acceptance. The use of two separate *straps is a dis* advantage. The free ends when not in use lie across th seat, and frequently the outside strap falls out the door as one leaves the car or falls onto the floor of the front seat. If the free ends lie on the seat and one enters th car in a hurry, he is likely to *sit on the* straps and driv off before remembering to *fasten them.* While drivin he must find the two ends and place them across his la Then in order to fasten the seat belt he must take bo hands off the wheel, and, unless he is very dexterous, must also take his eyes off the road for a split secon More likely than not, he will decide to forego the u of the safety belt for that particular short trip.

These disadvantages can be corrected with improv ment in design. A belt that rolls up when not in u would be an improvement. Possibly a single strap th could be engaged with one hand would improve t situation. At least one can be sure that until improv designs are available the public is not going to take f advantage of this means of safety. Eventually a meth must be developed whereby the passenger is automa cally and instantaneously restrained during a crash. Su a mechanism can be designed that will become activat by a sudden deceleration.

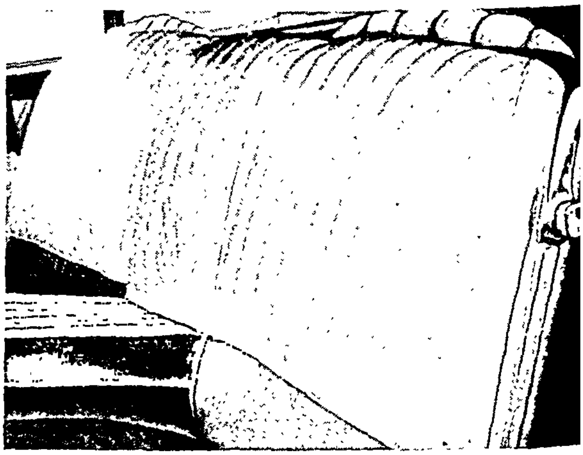


Fig. 6.—Front view of elevated seat back.

PUBLIC AND INDUSTRIAL RESPONSIBILITIES

Pressure is developing that will bring about adequate improvements. Unfortunately, to date there has been much smoke but no fire. Many articles have been written, much scientific investigation has been carried on, and any number of new ideas have been developed. However, almost no progress has been made, and few new ideas have been adopted. The reason is very simple. The automobile industry states that it cannot make the necessary changes, because of production cost, until such time as the public demands them and makes known that it will accept such changes costwise. The public would gladly insist upon changes, but it is completely unaware of what changes to demand. Basically it is difficult to understand this concept. The automotive people have built their empires on public acceptance of their products. The public has welcomed with enthusiasm every constructive change offered—especially those that lessen the hazard of driving, such as windshield wipers, power windows, safety glass, blowout-proof tires, wraparound windshield, sealed-in beam headlights, and improved dashboards. These are not purely mechanical features and do not add to the performance of the car, yet the public thinks enough of them to pay the added cost of production.

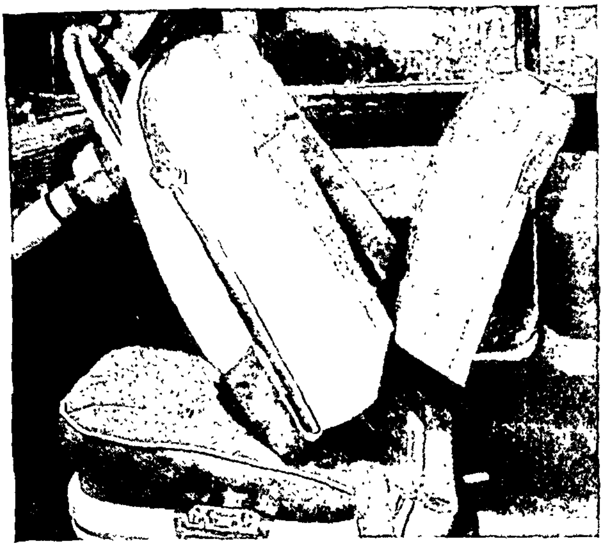


Fig. 7.—Three-section front seat, showing rigid center section with outer sections tilted forward.

The medical profession readily agrees that the industry has continually added to the safety of the automobile through development and adoption of improved mechanical devices. Frame construction, power brakes, power steering, improved engine design, and automatic transmission are proved advances that afford greater driving efficiency and safety. Noteworthy as these changes may be, they do not improve the driver's or passenger's chances of survival during a crash. It is the aim of the medical profession to have as much concentrated effort spent on improving the safety design as is spent on the rest of the car. In fact, the need is so urgent that changes must be made immediately and to such a degree that the frightening toll of death and disability will be reduced to a minimum. It cannot be done piecemeal, a little device here and there, just enough to appease the medical profession without adding to the cost of the car.

However, it is recognized that no one company can afford to undertake an immediate and complete safety program for all its cars. Such a step might be disastrous financially if, for some reason, the company's safety methods proved to be less efficient, less pleasing to the buying public, or even more expensive than those developed a few months later by competitors. The automobile industry has an important public health and welfare problem on its hands. If it could be solved effectively by some joint action within the industry, it would prove to be a satisfactory solution of the problem. If the industry cannot rise to its responsibilities, the entire matter should be removed from its jurisdiction and be solved by methods employed in any other urgent public health problem.

The industry could decide the entire matter without outside intervention, but, considering their past performance with regard to safety devices, I doubt seriously if there is any likelihood of such an occurrence. If left to them, a new but minor change would be made each year as fitted their over-all plan, as has been done in exterior styling and design. Such a delaying action may be a satisfactory policy in business but not in a matter of health and public safety. Translated into medicine, it would be comparable to withholding known methods of lifesaving value. In medicine the need is recognized and probable solutions to the problem investigated, developed, and tested. If these prove to be effective and nontoxic, they are employed immediately, even though at the moment there may be limitations to their therapeutic value.

In the case of automobile safety devices, the need is recognized and the design changes are known, but there the whole program grinds to a discouraging halt. The known hazards in interior design should be eliminated immediately. Over the years, new and better methods can be developed, tested, and installed to replace the earlier methods. Statistical studies, such as those being carried on at Cornell University by Moore and his group,[2]

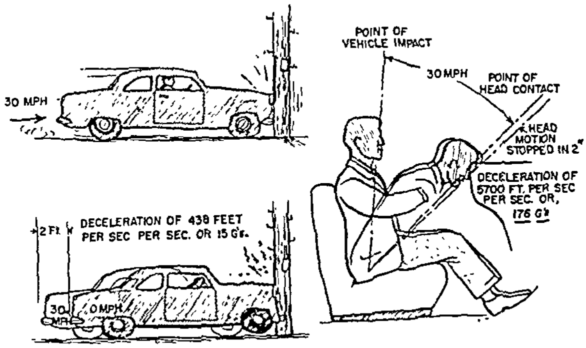


Fig. 8.—Mechanics of acute head injury resulting from sudden deceleration.

---

[2] Moore J. O., and Tourin, B.: A Study of Automobile Doors Opening Under Crash Conditions: The Relationship Between the Opening of Front Doors and the Area of the Passenger Automobile Sustaining the Principal Impact, New York, Automotive Crash Injury Research, Department of Public Health and Preventive Medicine, Cornell University Medical College, 1954.

will serve to point out additional hazards that require investigation. Every facet of automotive safety does not have to be statistically proved before improvements in design are made. Every possible source of injury should be considered and some attempt made to eliminate each particular hazard. The change this year may have to be modified in a year or two, but at least during this time the public will have had added protection. There are enough potential sources of injury in every present-day automobile to keep the designers busy indefinitely.

PREVENTION BY NATIONAL CONTROL

It is proposed that a national group be set up by the President of the United States to regulate and approve automobile safety. This group should be granted power to prevent public sale of vehicles that do not meet requirements of safety design. This group should consist of persons in all related fields, appointed on the basis of ability and experience. This arrangement would allow the industry to pool safety ideas and submit to the national committee those ideas that the manufacturers believe would afford the greatest degree of safety with the smallest cost to the public. There would be no competitive aspect to this feature of automobile construction, since adopted measures would be of standard design. There would be no financial risk, for the same production costs would be transmitted by all manufacturers directly to the public.

The protection of the public through legislative co trol of safety measures is an accepted part of our da life. One cannot buy food that has not passed inspecti Drugs must be approved before being put on the mark Dangerous drugs cannot be dispensed without prescr tion by a licensed physician. Airlines and railroads ca not operate without fulfilling safety requirements. A n home cannot be built and occupied without passing n merous safety inspections. Automobiles cannot driven without adequate lights and brakes, nor can th be operated by drivers who have not passed a st examination. There are countless examples of contr being exerted in behalf of public safety, yet we all the automobile industry to continue manufacture of product known to be faulty in safety design.

We can expect, and we will encounter, resistance the suggestions and recommendations. However, who see this grim pattern reenacted daily realize that is our duty to demand that the public be protected as i any national health problem. If this nation were co fronted with an epidemic disease that took the lives o 38,000 persons in one year, and the medical professio did not take steps to control the situation, there woul be a congressional investigation. Possibly that is th only solution to the problem of automobile deaths. How ever, let us hope that with concentrated effort we ou selves can effect the cure for the head injury epidemi The only cure is prevention.

696 E. Colorado St. (1).

STUDIES OF ADENOIDAL-PHARYNGEAL-CONJUNCTIVAL VACCINES IN VOLUNTEERS

Robert J. Huebner, M.D., Joseph A. Bell, M.D., Wallace P. Rowe, M.D., Bethesda, Md.
Thomas G. Ward, M.D., Baltimore, R. Gerald Suskind, M.D., Janet W. Hartley, M.S.
and
Ralph S. Paffenbarger Jr., M.D., Bethesda, Md.

It has been shown that adenoidal-pharyngeal-conjunctival (APC) viruses are responsible for certain hitherto undifferentiated respiratory illnesses and that they have been associated with certain external diseases of the eye.[1] These viruses produce neutralizing antibodies in human serum.[1b] Nine human and two simian adenoidal-pharyngeal-conjunctival virus serotypes have been delineated to date.[2] When types 1, 3, 4, and 5 are swabbed on the conjunctivas of susceptible volunteers, they regularly produce a moderately severe, self-limited catarrhal conjunctivitis, together with systemic symptoms similar to those of pharyngoconjunctival fever. Volunteers having specific serum antibodies are resistant to the disease.[3] This report describes init studies with volunteers, studies designed to determi the ability of a formaldehyde-inactivated and a heat-i activated type 3 APC virus vaccine to (*a*) produ specific neutralizing antibodies in the serum and (*b*) prevent or modify artificially induced infection and d ease.

MATERIALS AND METHODS

Preparation of Vaccines.—The J. F. strain of type virus, originally isolated from a patient with pharyng conjunctival fever,[1g] was used. Fluids from the 7 through the 10th passages in tissue cultures of monk kidney were pooled, centrifuged at 2,500 rpm for minutes, and filtered through a no. 03 Selas candle. Th material had an infectivity titer of $10^{-5.5}$ in HeLa tiss cultures and a complement-fixing antigen titer of 1: The heat-inactivated vaccine was prepared by heati 100 ml. of the virus pool in sealed ampuls at 56 C f 30 minutes. It was stored at or below −10 C until use The formaldehyde-inactivated vaccine was prepared l adding formaldehyde solution N. F. (Formalin) to 4(ml. of the virus pool, making a final concentration

---

From the U. S. Department of Health, Education, and Welfare, Public Health Service, National Institutes of Health, National Microbiological Institute, Laboratory of Infectious Diseases, (Drs. Huebner, Bell, Rowe, Suskind, and Paffenbarger and Miss Hartley) and the Department of Microbiology, School of Hygiene and Public Health, the Johns Hopkins University (Dr. Ward).

The inmates and staff of the Federal Industrial Reformatory, Chillicothe, Ohio, and the Maryland State Reformatory for Males, Breathedsville, Md., cooperated in this study.

These studies were supported in part by a grant from the Research Grants Division, United States Public Health Service, and by a grant from the Common Cold Foundation.

0.25%. This mixture was held at 36 C for 24 hours on a shaking machine and stored for 17 days at 2 to 4 C. The formaldehyde was then neutralized with sodium bisulfite, and 24 hours later additional formaldehyde solution N. F. was added to give a colorimetric test equivalent to the reading of a 0.1% solution of formaldehyde solution N. F. After storage for an additional five days at 2 to 4 C, the material was frozen at or below −10 C until used.

Safety Testing of Vaccines.—A total of 0.8 ml. of the heat-inactivated vaccine was tested for infectivity in HeLa cell cultures, with negative results. Similarly 4.3 ml. of the formaldehyde-treated vaccine was tested two days after the shaking period, and 0.8 ml. of the final product was tested, with negative results. Infectivity tests were observed for a total of 29 days in first and second passages. Thioglycollate broth and blood agar cultures of both final vaccines were sterile. The original virus suspension and the formaldehyde-treated vaccine produced no evidence of illness when injected into rabbits, guinea pigs, and suckling and adult mice.

Potency of Vaccine.—Two rabbits were immunized, as previously described,[1c] with the original virus pool, and both developed neutralizing antibody titers of over 1:640. Two were immunized with formaldehyde-inactivated vaccine and developed antibody titers of over 1:640 and 1:320. Two were immunized with heat-inactivated vaccine and developed titers of 1:320 and 1:10. The inactivated vaccines contained detectable complement-fixing antigen.

Use of Vaccines.—Eighty-three male inmates, 21 to 29 years of age, were selected from volunteers of the two cooperating institutions and studied from March to June, 1955. After pretesting for type 3 APC virus neutralizing antibody, 45 persons having little or no antibody were given vaccine and 38 persons, with and without naturally acquired antibodies, comprised an unvaccinated control group.

Twenty-two volunteers received three doses of 2 ml. each of formaldehyde-inactivated vaccine intramuscularly at intervals of 8 and 12 days. In addition, 0.1 ml. was given intradermally at the time of the first injection. Twelve individuals received a single dose intramuscularly without an intradermal dose. Eleven volunteers received three doses of 2 ml. each of heat-inactivated vaccine intramuscularly at 10-day intervals as well as an intradermal dose of 0.1 ml. at the time of the first injection. There were no local or general reactions to the intramuscularly injected vaccines. Prevaccine blood specimens were collected from all vaccinees at the time of the first injection, and postvaccine blood specimens were collected 12 to 21 days after the last dose. Prechallenge blood specimens were collected from controls at the same time that postvaccination blood specimens were drawn. The latter served as prechallenge blood specimens for vaccinees.

Neutralization Tests.—Antibody determinations were performed on all serums at a dilution of 1:8 in a single batch of monkey kidney tissue cultures.[4] In addition quantitative neutralization tests in HeLa cell cultures were performed by "procedure 2" as outlined previously.[1c] Some serums were toxic for HeLa cells; therefore, these HeLa tests were of value only in determining antibody end-points at higher dilutions. The procedure in monkey kidney cells was identical with that of the HeLa cell tests except that the interpretation of results was as follows. The test was read 72 hours after the virus controls showed characteristic cytopathogenic changes.[4] A serum that completely prevented the appearance of cytopathogenic effects was classified as having a titer of greater than 1:8 (positive test). When cytopathogenic changes occurred, the titer was considered less than 1:8 (negative test). The results of HeLa cell and monkey kidney tests correlated closely at a dilution of 1:8.

Virus Challenge.—Volunteers were challenged with a 1:300 dilution of type 3 APC virus (sixth monkey kidney passage of strain J. F.) having an original infectivity titer of 10^{-}[illegible]. The virus was swabbed on the palpebral conjunctiva of one eye, the other eye being swabbed with tissue culture maintenance fluid. During the observation period neither the observers nor volunteers knew which eye had received virus. Seven days after challenge, swabs from the eyes and throat were collected for virus culture in HeLa cells.

One observer at each institution was responsible for clinical observation of all study persons throughout the 10-day postchallenge period. In addition, two or more observers made frequent independent examinations of study persons during the period of acute illness (four to eight days after challenge). During the 10-day postchallenge period, persons were classified as having no illness when none of the observers found conjunctivitis. Persons were classified as having definite illness when two or more observers noted conjunctivitis that persisted for at least two days. All others were classified as having questionable illness. The observers were consistent in their objective findings of conjunctivitis. In only 66 (4%) of 1,546 person-day-eye examinations during the acute stage of illness did one observer differ from another in recording conjunctivitis. This objective classification of definite, questionable, or no illness correlated closely with the occurrence of other signs and symptoms (fever, sore throat, preauricular lymphadenopathy, increased lachrymation, and eye irritation) of pharyngoconjunctival fever.

---

1. (*a*) Rowe, W. P., and others: Isolation of a Cytopathogenic Agent from Human Adenoids Undergoing Spontaneous Degeneration in Tissue Culture, Proc. Soc. Exper. Biol. & Med. **84**: 570-573 (Dec.) 1953. (*b*) Huebner, R. J., and others: Adenoidal-Pharyngeal-Conjunctival Agents. A Newly Recognized Group of Common Viruses of the Respiratory System, New England J. Med. **251**: 1077-1086 (Dec. 30) 1954. (*c*) Rowe, W. P., and others: Studies of the Adenoidal-Pharyngeal-Conjunctival (APC) Group of Viruses, Am. J. Hyg. **61**: 197-218 (March) 1955. (*d*) Hilleman, M. R., and Werner, J. H.: Recovery of New Agent from Patients with Acute Respiratory Illness, Proc. Soc. Exper. Biol. & Med. **85**: 183-188 (Jan.) 1954. (*e*) Hilleman, M. R.; Werner, J. H.; Adair, C. V., and Dreisbach, A. R.: Outbreak of Acute Respiratory Illness Caused by RI-67 and Influenza A Viruses, Fort Leonard Wood, 1952-1953, Am. J. Hyg. **61**: 163-173 (March) 1955. (*f*) Parrott, R. H., and others: Outbreak of Febrile Pharyngitis and Conjunctivitis Associated with Type 3 Adenoidal-Pharyngeal-Conjunctival Virus Infection, New England J. Med. **251**: 1087-1090 (Dec. 30) 1954. (*g*) Bell, J. A., and others: Pharyngoconjunctival Fever: Epidemiological Studies of a Recently Recognized Disease Entity, J. A. M. A. **157**: 1083-1092 (March 26) 1955. (*h*) Cockburn, T. A.; Rowe, W. P., and Huebner, R. J.: Unpublished data. (*i*) Ginsberg, H. S., and others: Etiologic Relationship of the RI-67 Agent to "Acute Respiratory Diseases (ARD)," J. Clin. Invest. **34**: 820-831 (June) 1955. (*j*) Berge, T. O.: Personal communication to the authors. (*k*) Jawetz, B., and others: Am. J. Ophth., to be published.

2. Rowe, W. P.; Huebner, R. J., and Hartley, J. W.: Unpublished data.

3. Ward, T. G., and others: Science, to be published. Bell, J. A., and others: Unpublished data.

4. Hartley, J. W.; Rowe, W. P., and Huebner, R. J.: Unpublished data.

RESULTS

Vaccine-Induced Antibody Response.—All prevaccine serums were negative for type 3 APC antibodies at 1:8 dilution in the monkey kidney neutralization test. Postvaccine serums of 35 (78%) of 45 vaccinees were positive at a 1:8 dilution (table 1). These antibody responses were similar among groups receiving different types and dosages of vaccine. The persistence of these antibodies was not determined. None of the vaccinees developed acute illness from the start of vaccination until challenged with virus. In quantitative tests with HeLa cell cultures, postvaccine titers were greater than 1:64 in 13 (37%) of the 35 vaccinees showing antibody responses. This approximates the finding of similar antibody levels in 8 of the 17 nonvaccinated volunteers with naturally acquired antibody.

TABLE 1.—*Vaccinees Developing Antibodies to Type 3 APC Virus Vaccines and Developing Infection and Illness After Challenge with Type 3 APC Virus*

	Antibody Response to Vaccination		Postchallenge Experience Among 35 Vaccinees Who Had Vaccine-Induced Antibodies		
				Illness	
Vaccine Given	No. Vaccinated*	No. Developing Antibodies, (Titer >1:8)	Infection, Virus Recovered 7th Day	Definite and Questionable	Definite Only
Formaldehyde-inactivated					
1 dose	12	10	4	6	4
3 doses	22	17	3	5	3
Heat-inactivated					
3 doses	11	8	3	3	3
Totals	45	35	10	14	10

* All had no demonstrable antibodies (titer <1:8) prior to vaccination.

Protection Against Challenged-Induced Infection.—Table 2 shows the occurrence of infection on the seventh day after challenge with type 3 APC live virus introduced by conjunctival swabbing. Virus was isolated from eye or throat cultures in 35 (83%) of 42 definite cases, as contrasted with 3 from 10 questionable cases and 2 from 31 volunteers without illness. As in naturally occurring pharyngoconjunctival fever, virus isolations from the eye occurred almost exclusively in the eye with conjunctivitis. Conjunctivitis occurred primarily in the eye that had been inoculated. Virus was isolated from the eye or throat of 24 (77%) of 31 volunteers without prechallenge neutralizing antibodies. In contrast, virus was isolated from 16 (31%) of 52 volunteers having prechallenge antibody, and there was no appreciable difference between those with vaccine-induced or naturally acquired antibodies. Among groups receiving different dosages and types of vaccine there were no significant differences in rates of virus recovery (table 1).

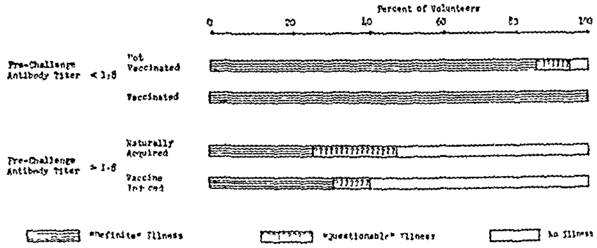
TABLE 2.—*Volunteers Shedding Virus and Developing Illness After Challenge with Type 3 APC Virus*

Prechallenge			Postchallenge		
				Illness	
Antibody	Vaccinated	No. of Volunteers	Infection, Virus Recovered 7th Day	Definite and Questionable	Definite Only
None (<1:8)	No	21	16	20	18
None (<1:8)	Yes	10	8 (77%)	10 (97%)	10 (90%)
Naturally (>1:8) acquired	No	17	6 (35%)	8 (47%)	4 (24%)
Vaccine- (>1:8) induced	Yes	35	10 (29%)	14 (40%)	10 (29%)

Protection Against Challenge-Induced Illness.—Table 2 and the figure also show the occurrence of illness following virus challenge. A total of 28 (90%) of 31 volunteers without demonstrated prechallenge antibodies developed illness classed as definite. In contrast 14 (27%) of 52 volunteers with prechallenge antibodies developed definite illness, a significantly lower proportion. Attack rates in volunteers with vaccine-induced and with naturally occurring antibodies were nearly equal. Although the numbers are small, the data (table 1) indicate that both heat-inactivated and formaldehyde-inactivated vaccines, in the dosages used, provided protection against the challenge illness. Even a single dose of formaldehyde-inactivated vaccine seemed to offer substantial protection.

COMMENT

Serologic evidence from widespread areas indicates that man is commonly infected with the adenoidal-pharyngeal-conjunctival viruses.[5] It appears that these infections are readily spread from person to person and frequently result in acute respiratory illness. Hilleman and others have reported that type 4 APC virus (RI 67) is responsible for a substantial proportion of acute respiratory disease in military recruits.[6] In addition, type 7 (also type 3) has been associated with respiratory illness in military recruits.[1j] Type 3 causes pharyngoconjunctival fever, a five-day illness that occurs endemically in the general population and in sharp outbreaks.[7] Types 1, 2, and 5 occur chiefly during infancy and early childhood and represent the types "unmasked" most frequently from adenoids and tonsils.[8] Studies now in progress indicate that infants and children have high rates of infection with types 1, 2, and 5, and such infections appear to be associated with illnesses characterized by fever and pharyngitis. Type 8 ("Trim virus") isolated by Jawetz and co-workers [1k] has been associated with epidemic keratoconjunctivitis.



Percentage of volunteers developing illness after type 3 adenoidal-pharyngeal-conjunctival virus challenge, according to prechallenge antibody titer and vaccine status.

Present evidence suggests that adenoidal-pharyngeal-conjunctival viruses are responsible for a substantial segment of hitherto undifferentiated respiratory illness, and attempts at vaccine prophylaxis appear warranted.

---

5. Footnote 1*b*, *c*, and *e*.
6. Footnotes 1*e* and *i* and 2.
7. Footnote 1*g* and *h*.
8. Footnotes 1*c* and 2.

The possibility of accomplishing this is complicated by (*a*) the existence of multiple serotypes of adenoidal-pharyngeal-conjunctival virus and (*b*) the epidemiological and clinical differences that characterize the illnesses with which these viruses are associated. The initial studies herein reported show that an inactivated monovalent vaccine effectively prevented experimentally induced illness in adult volunteers. These promising results suggest further epidemiological studies to determine the effectiveness of a polyvalent vaccine in preventing the naturally occurring illness in children as well as in adults and to determine the duration of protection.

SUMMARY

Formaldehyde-inactivated and heat-inactivated type 3 adenoidal-pharyngeal-conjunctival (APC) virus vaccines were prepared that induced neutralizing antibodies when inoculated into young adult volunteers. After challenge with live type 3 APC virus swabbed on the conjunctivas, volunteers with vaccine-induced antibodies experienced much greater protection against infection and illness than did vaccinated or unvaccinated persons without demonstrated antibodies. This vaccine-induced protection was nearly equal to that of unvaccinated volunteers with naturally acquired antibodies.

PREVIOUSLY UNRECOGNIZED TRANSMISSIBLE AGENT IN HUMAN BLOOD

EXPERIMENTAL AND CLINICAL STUDIES

Lieut. Ernest Beutler
and
Capt. Raymond J. Dern (MC), U. S. Army

In the course of erythrocyte survival studies reported elsewhere,[1] cells from a single healthy donor were injected into six recipients. An influenza-like febrile illness occurred in five of the six recipients about two weeks after the injection. Serial transmission of blood collected during the acute phase of this illness caused a similar syndrome in new recipients. Further evidence of a causal relationship between these red blood cell transfusions and the subsequent appearance of a febrile illness was obtained by examining the clinical histories of persons previously receiving blood from the same donor. Some information regarding the nature of the transmissible agent has also been obtained.

MATERIALS AND METHODS

Volunteers.—Except for one student volunteer from the University of Chicago, all of the donors and recipients were prison inmate volunteers. Only occasional, sporadic cases of short undifferentiated febrile illnesses were observed in the period during which these observations were made.

Blood.—Blood samples were heparinized, and whole blood, plasma, or washed cells were injected intravenously into recipients within three hours of the time the blood was drawn, except where otherwise indicated. In all of these studies only cells compatible with respect to the **A, B, C, c, D, E,** and e factors and carefully cross matched were transfused. In some cases the red blood cells were tagged with sodium chromate with radioactive chromium ($Na_2Cr^{51}O_4$) in connection with cell survival studies. This substance was added to heparinized whole blood and the mixture allowed to stand at room temperature for one hour. The plasma was removed, and the cells were washed once in isotonic sodium chloride solution before being resuspended in saline solution. We have employed this technique in the labeling of erythrocytes from 38 other men, injected into approximately 300 recipients, without any ill-effects.

Medications.—In connection with the cell survival studies, for which many of the transfusions were carried out, some of the men received 30 mg. of primaquine base daily at various times after inoculation. The administration of this drug was unrelated to the illness under study, since most of the recipients who developed symptoms were not given primaquine; furthermore, no febrile reactions have been encountered during the past few years in approximately 800 men who have received primaquine. Many of the volunteers received aspirin during the course of their illness.

CLINICAL HISTORIES

Original Source.—The original source of the transmissible disease was an apparently healthy 25-year-old Negro male (K) who has been an inmate of the Illinois State Penitentiary for the past four years. He denied having any illness in the past year except for two mild, upper respiratory infections, each lasting only one to two days and being unaccompanied by fever. He was clinically well each time his blood was used in connection with these studies. He had had measles and mumps in childhood but denied ever having arthritis, syphilis, gonorrhea, malaria, typhoid, brucellosis, or jaundice

---

From the Army Malaria Research Unit, Department of Medicine University of Chicago, Chicago. Dr. Beutler is now an Instructor, Department of Medicine and the Argonne Cancer Research Hospital, University of Chicago. Dr. Dern is now an Assistant Professor, Department of Medicine, Stritch School of Medicine, Chicago.

Most of the serologic examinations were done by Mr. R. Benham, Clinical Microbiology Laboratory, University of Chicago.

Leptospira cultures were done through the courtesy of the Division of Veterinary Medicine, Army Medical Service Graduate School, Washington, D. C.

These studies were conducted under a contract between the Research and Development Division, Office of the Surgeon General, Department of the Army, and the University of Chicago.

The administrative officials and inmate volunteers at the Illinois State Penitentiary, Joliet, Ill., cooperated in this study.

[1] Dern, R. J.; Beutler, E., and *Alving A. S.: The Hemolytic Effect* of Primaquine: II. The Natural Course of the Hemolytic Anemia and the Mechanism of its Self-Limited Character, J. Lab. & Clin. Med. **44**: 171-176, 1954.

[2] Deleted on proof.

Although he had been in the South Pacific in 1947, he denied being ill at the time. He admitted having used narcotics administered intravenously between 1947 and 1949. On four or five occasions he had used the needles of other addicts, "sterilizing" them only by holding them under hot tap water. His family history was essentially negative. Physical examination was negative except for minimal cervical lymphadenopathy. The red blood cell count, hemoglobin concentration, white blood cell count, differential blood cell count, sedimentation rate, and urinalysis were all normal. Further laboratory studies, listed in table 1, gave normal results.

Symptoms in Recipients.—The symptoms of the recipients are listed below.

TABLE 1.—*Normal Laboratory Findings*

	Test Performed on		
	K	Recipients During Acute Illness	Recipients After Recovery
Kahn test	x	x	x
Thick smear for malaria	x	x	..
Aerobic blood cultures	x	x	..
Culture for Leptospira	x	x	..
Anaerobic blood cultures	x	x	..
Plasma proteins and albumin-globulin ratio	x	x	x
Serum bilirubin	x	x	x
Sulfobromophthalein (Bromsulphalein) sodium excretion	x	..	x
Cephalin flocculation	x	x	x
Thymol turbidity	x	x	x
Serum cholesterol and esters	..	x	x
Heterophil antibody titer (unabsorbed)	x	x	x
Typhoid agglutinins	x	x	x
Paratyphoid A and B agglutinins	x	x	x
Brucella agglutinins	x	x	x
Proteus OX-19 agglutinins	x	..	..
Tularemia agglutinins	x	..	..
Leptospira agglutinins	..	x	x
icterohaemorrhagiae			
canicola			
pomona			
grippotyphosa			
sejroe			
bataviae			
pyrogenes			
ballum			
Chest x-ray	x	x	x
Electrocardiogram	x	x	x
Western equine encephalitis (complement fixation)	..	x	x
Eastern equine encephalitis (complement fixation)	..	x	x
Lymphocytic choriomeningitis (complement fixation)	..	x	x
Mumps (complement fixation)	..	x	x
Psittacosis (complement fixation)	..	x	x
Lymphogranuloma venereum (complement fixation)	..	x	x
Influenza A, A′, B, C (complement fixation)	..	x	x
RI-67* antibody	..	x	x

* Hilleman, M. R., and Werner, J. H.: Recovery of New Agent from Patients with Acute Respiratory Illness, Proc. Soc. Exper. Biol. & Med. 85: 183-188, 1954.

Early Acute Symptoms: The clinical features of the acute illness resulting from the injection of K's blood or from the injection of blood from inoculated volunteers are summarized in table 2. Headache and myalgia were present in most patients. Over two-thirds of the patients also developed fever. Nausea and vomiting were sufficiently severe in several cases to necessitate parenteral administration of fluids. Upper respiratory symptoms were present in slightly less than one-half of the patients. Physical examinations were negative in most cases except for fever and tachycardia. In those patients with severe nausea and vomiting, dehydration was present. In some of those with upper respiratory symptoms slight inflammation of the nasal mucosa was observed, but no patient had exudative pharyngitis. Whenever examined, the ear drums and fundi were normal. No nuchal rigidity, no lymphadenopathy, and no abnormality of the lungs or heart were noted. No splenomegaly or hepatomegaly could be detected in any case. Neurological examination was normal. The hemoglobin level and urine remained normal except for transient slight albuminuria in two patients. The white blood cell count frequently became depressed to 4,000 to 5,000 per cubic millimeter, but the differential count always remained normal. Other laboratory examinations performed on one or more of the patients are summarized in table 1.

Relapses and Late Symptoms: Most of the patients recovered quickly from the acute attack and, after a few days of excessive fatigability, remained quite well. In a few cases, however, apparent relapses occurred. Some patients who were clinically well for a few days to a few weeks developed recurrent symptoms after returning to their regular duties. These symptoms were usually milder than the initial symptoms and disappeared within one to two weeks.

There were six patients (cases 13, 14, 31, 32, 48, and 51) who developed painful stiffness of the joints one to five weeks after the acute symptoms had subsided. One of these (case 31) had had previous joint symptoms of doubtful significance. The proximal interphalangeal and wrist joints were most commonly involved, but pain also occurred in the shoulders, elbows, hips, knees, ankles, and small joints of the feet. The joint pains were sometimes migratory. Two of the patients volunteered that joints that had been previous sites of trauma were most severely affected. In all cases symptoms were worse in the morning and after prolonged inactivity and improved on exercise. Clear-cut clinical evidence of acute synovitis was never present, but some questionable soft tissue swelling of the proximal interphalangeal joints was present in one case. Muscle spasm around involved joints was minimal. The white blood cell count was normal in all cases. The sedimentation rate was normal in four cases and somewhat elevated in two cases, to a maximum of 20 and 31.5 mm. per hour (Wintrobe). Electrocardiograms were normal. In both patients in which such studies were carried out, the test for C-reactive protein was negative and antistreptocolysin titers were 50 units. One patient was given 500 mg. of cortisone over an 8-day period without any benefit; another was given 650 mg. of cortisone over one 10-day period and 525 mg. over another 6-day period with questionable benefit. All patients who developed arthralgia have been clinically well for follow-up periods of from 4 to 31 weeks. The six patients who developed arthralgia were all recipients of aliquots from three blood samples. None of the donors had such symptoms at any time; patients subinoculated from one of the patients with arthralgia (case 31) did not develop any joint symptoms.

Four patients (cases 25, 33, 36, and 37) developed episodes of fever with headache and myalgia or vomiting 12 to 16 weeks after their original inoculation with the agent, immediately after termination of courses of malaria to which they had been subjected for purposes un-

dreds of such malarial infections
y seen this type of clinical course
ne patient (case 33) had never
s after inoculation, but three pa-
d 37), had had such symptoms.
(cases 36 and 37) had received
ne patient in case 25; hence it is
suffered from relapses or from
it in case 25, however, was given

racteristics of Early Acute Illness
ation of Agent into Thirty-Nine
Developed Symptoms Within
ys After Inoculation

		No. of Patients
o first symptom,* days		
		0
		9
		7
		10
		6
		5
		1
		38*
iys		
		1
		11
		10
		4
		7
		5
		37
		35
		19
		9
		9
		0
itoms		16
	11	
	6	
	6	
ature, F (C)		
ian 37.8)		12
38.2)		8
38.8)		3
39.4)		4
39.9)		7
40.5)		5
e over 100 F (over 37.8 C), days		
		13
		13
		1

ent in case 50, who developed symptoms

a patient who had never been
ent study, and the patient in case
nalaria by mosquito bites; thus
have been relapses of the illness

ory findings that were suggestive
itis were found in any of these
h illustrating some of the various
illness, are presented below (fig.

RT OF CASES

year-old white male had been an in-
Penitentiary for three years. Although
malaria in the past, a radical cure
oroquine and primaquine. Otherwise

blood that had been drawn from K on Jan. 26, 1954, and stored in the refrigerator at 4 C was chromated and injected intravenously into the subject. He felt perfectly well when seen daily for the following 11 days. On the 12th day he was not seen for routine temperature check because a breach of discipline had caused him to be put into solitary confinement. On the following day, however, he reported that on the 12th day his head and legs had begun to ache and that he had felt feverish. Cough, rhinorrhea, nausea, and vomiting developed as shown in figure 1. Physical examination was negative except for right-sided reddening and swelling of the nasal mucosa with a white mucoid discharge. Aspirin was withheld from the patient so that the course of his temperature curve could be observed, and he was given codeine for control of pain. From the 15th through the 30th day the patient was given 3.6 gm. of sulfanilamide daily in connection with a cell survival study. By the 22nd day he was asymptomatic, and he remained so for a follow-up period of 22 weeks.

CASE 31 (fig. 2).—A 40-year-old white male had been an inmate of the Illinois State Penitentiary for the past three years. He had been infected with malaria in the past, but a radical cure had been effected with chloroquine and primaquine. Otherwise his general health had been good. Although on close questioning he admitted occasionally having had mild, transient joint pains for about five years, these pains never caused him to lose time from work or to see a physician. On Feb. 26, 1954, he received an intravenous injection of 10 ml. of plasma from the patient in case 25, who had recovered two weeks previously from an acute illness induced by the injection of washed cells from K. Although he reported a mild, transient headache on the 3rd day and on the 9th days after inoculation, and mild upper respiratory symptoms on the 9th and 14th days, he did not develop any unusual symptoms until the evening of the 18th day, at which time he abruptly developed headache, rhinorrhea, generalized muscular pain, and feverish feeling with chills. When seen the next day he had a temperature of 103 F (39.4 C). Otherwise, physical examination was negative. Aspirin was administered, and the symptoms and fever subsided over a five-day period. The patient was asymptomatic for several days. On the 28th day, however, the patient began to complain of pain and stiffness in the wrists, proximal interphalangeal joints, and right shoulder. There was no swelling or tenderness of the joints, but there was some weakness of the grip on the left. The sedimentation rate was 30 mm. per hour (Wintrobe). The C-reactive protein test was negative. Antistreptocolysin titer was 50

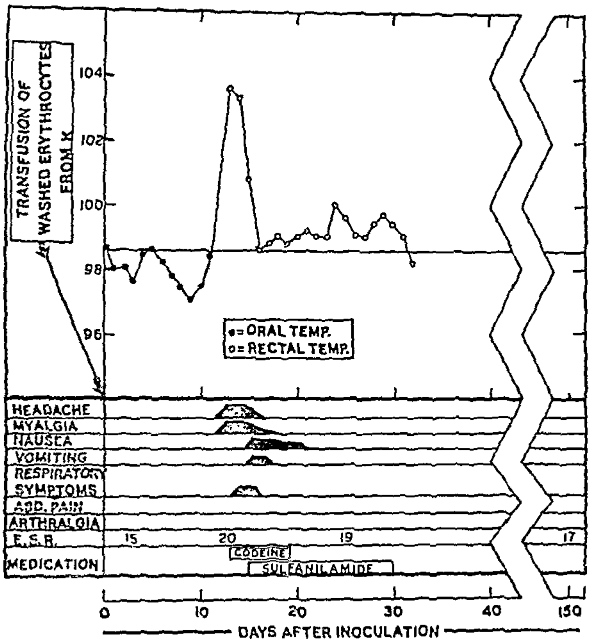


Fig. 1.—Clinical course of the patient in case 26.

units. The joint pains continued virtually unabated for about three weeks. They were sufficiently severe to make it impossible for the patient to perform his duties in the prison soap factory. During this period he also suffered from intermittent pain in the left shoulder, both elbows, knees, and feet, each lasting only a few days at a time. The joint symptoms were worse in the morning upon rising and gradually lessened during the day. The symptoms gradually subsided over an additional four weeks. During the subsequent 12-week period the patient has been essentially well. For a few weeks he noticed a mild "tired feeling" in the right shoulder each morning, but this, too, disappeared. The sedimentation rate has returned to 16.5 mm. per hour (Wintrobe).

TRANSMISSION CHARACTERISTICS

The transmission of this disease is illustrated by figure 3.

Route of Inoculation.—Intravenous and oral inoculations were carried out. All of the successful transmissions of the disease were by the intravenous route; oral administration of 0.5 ml. of whole blood to one volunteer (case 15) and 50 ml. of whole blood to another volunteer (case 42) failed to cause any symptoms, although aliquots of the same blood samples given to other volunteers by the intravenous route were effective in producing typical symptoms. Acutely ill volunteers were kept in an open ward with volunteers participating in other research projects. No cross infections were observed in any of these patients or in any of the nursing or medical personnel with a single possible exception. A nurse, who drew the blood samples, experienced an illness of several days' duration characterized by fever, headache, and cough, without any physical findings. He admitted that on several occasions he had punctured his skin with hypodermic needles while rinsing them after use. The relationship of his illness to that under study is not clear.

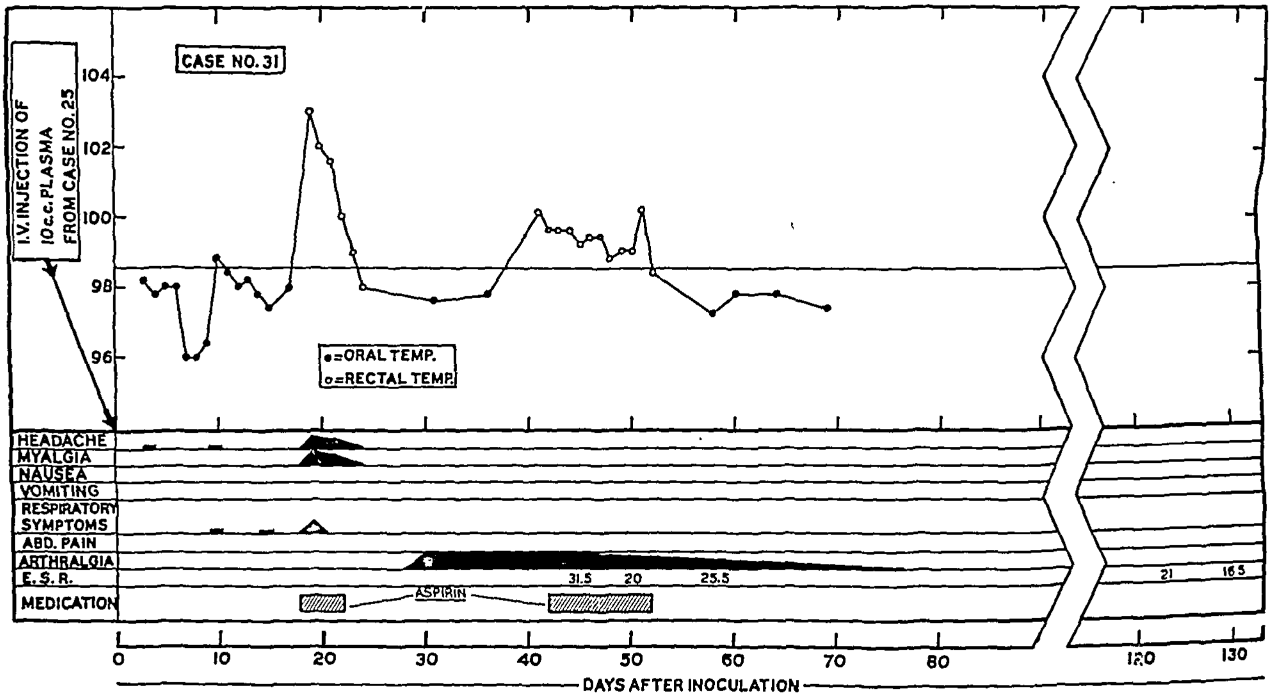


Fig. 2.—Clinical course of the patient in case 31.

Type of Inoculum.—Plasma, red blood cells washed two and four times, and whole blood all appeared equally effective in producing this illness. Quantities of 1 to 50 ml. were capable of causing the illness to appear. Inoculums smaller than 1 ml. were not used.

Filterability of Agent.—The illness could be transmitted through plasma that had been passed through Berkefeld diatomaceous porosity N or porosity W filters at a pressure of 660 mm. Hg (cases 39 and 40).

Stability of Agent.—One of two volunteers (cases 24 and 26) inoculated with red blood cells from blood stored at 4 C for 48 hours developed typical symptoms. One of two volunteers inoculated with aliquots of plasma from K frozen at –70 C for 19 days and one volunteer inoculated with another aliquot stored for 39 days at –70 C developed the clinical illness (cases 51, 52, and 53).

Neutralizing Effect of Convalescent Plasma.—In one experiment in which a single recipient (case 19) received mixed acute and convalescent plasma, the recipient failed to develop symptoms, although two other volunteers (cases 17 and 18) receiving the acute plasma alone did develop mild symptoms. In a second similar experiment, each of two recipients (cases 35 and 36) of mixed acute and convalescent plasma developed symptoms.

Persistence of Infectivity of Blood.—Blood samples drawn from K at intervals during the entire 13 months of observation proved infectious with a single exception (cases 11 and 12). Blood or plasma taken from volunteers during or immediately after the acute symptomatic phase of their illness invariably proved to be infectious (cases 5, 10, 16, 25, 26, 31, 44, and 45). Blood from the patients in cases 25 and 26, inoculated into volunteers about three weeks after the onset of acute symptoms, a time at which both men were asymptomatic, also caused illness in the recipients. On the other hand, plasma from the patient in case 10, although infectious during the acute phase, failed to induce symptoms in volunteers (cases 20 and 27) 2 and 18 weeks after the onset of the acute phase. The blood of the patient in case 37, however, appeared to induce symptoms nine weeks after the acute phase. It is of interest that the volunteer himself (case 37) had received malarious blood from the patient in case 25 only two weeks previously and had developed recurrent symptoms after the ensuing course of malaria.

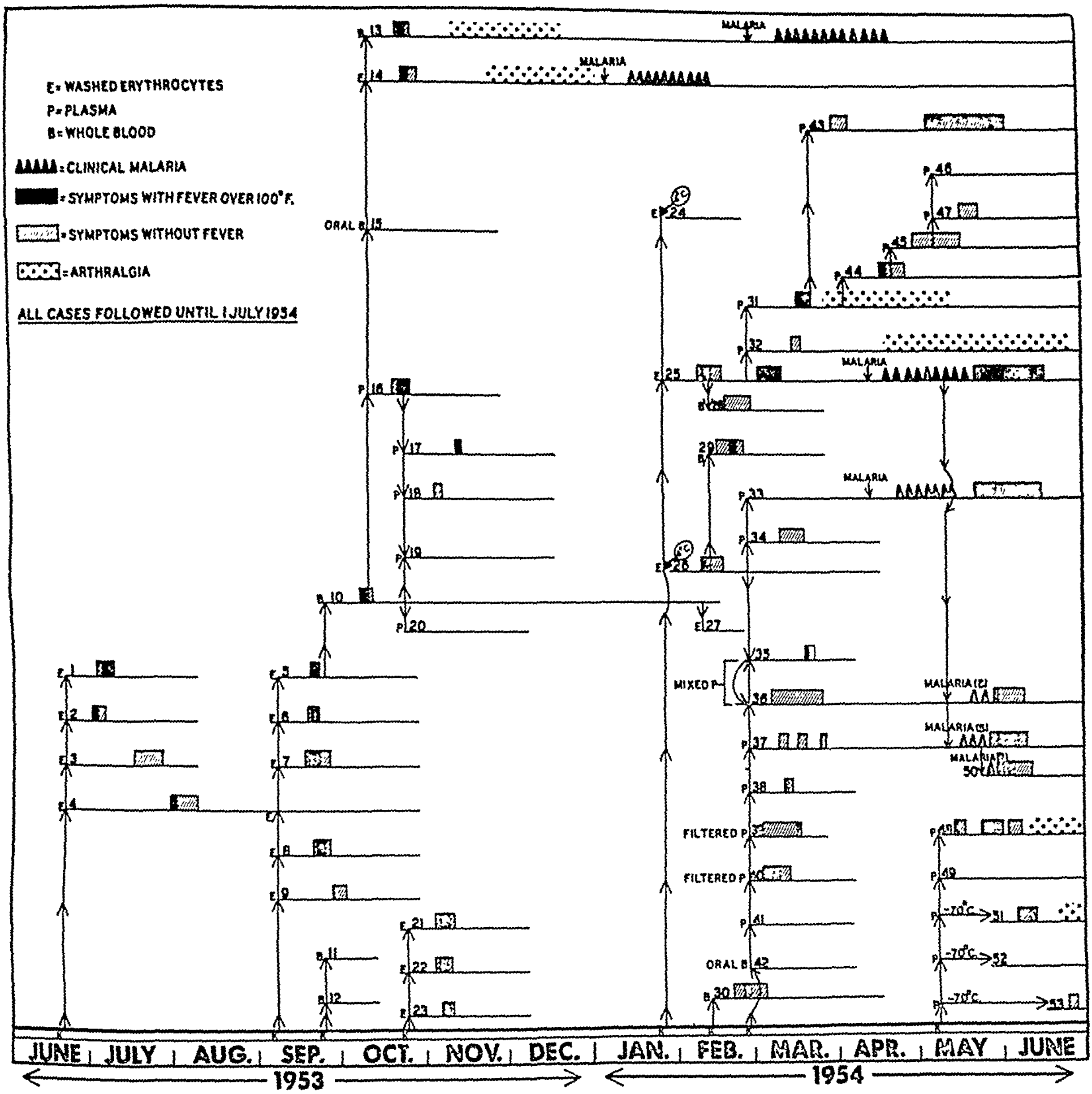


Fig. 3.—Transmission of the filterable agent through intravenous and oral administration of washed erythrocytes, plasma, and whole blood.

LABORATORY ISOLATION STUDIES

Heparinized blood and plasma obtained from K and specimens obtained from two volunteers (cases 32 and 45), who represented second and third passage of the agent, respectively, were refrigerated at –70 C or 4 C immediately after collection and during transmittal to the Army Medical Service Graduate School. No virus was isolated in the following hosts inoculated with frozen or refrigerated blood specimens: human cell tissue cultures (strain He La) and monkey kidney tissue culture in which four serial blind passages were made with superfluid and triturated cells; infant and adult mice inoculated intracranially and intracerebrally, three passages; monkeys and guinea pigs inoculated intraperitoneally and intravenously, two passages; embryonated eggs inoculated into amniotic cavity, chorioallantoic membrane, and yolk sac, three, three, and two passages respectively. In spite of these negative results, portions of the samples of unfrozen or frozen blood or plasma used as starting materials in the laboratory isolation studies produced disease when inoculated into human volunteers.

COMMENT

When washed erythrocytes or plasma from a certain volunteer were transfused, the recipients consistently developed an undifferentiated acute febrile illness. In addition, six patients, who had recovered from this illness, also developed pain and stiffness in the joints, invariably after being entirely free from the initial symptoms for a week or more. This interval between the acute illness and the arthralgia, the predilection for proximal interphalangeal and wrist joints, and the fact that the symptoms invariably were most severe after prolonged inactivity suggested that these symptoms might be due to the development of acute rheumatoid arthritis. In none of the patients was there clear-cut objective evidence of joint inflammation on physical examination, however. Four of six patients had entirely normal sedimentation rates, and in no case was the elevation of sedimentation rate very great. Furthermore, C-reactive protein and antistreptocolysin titers were normal. It appears exteremely doubtful, therefore, that the joint symptoms actually represented rheumatoid arthritis. Their exact nature remains obscure. Malaria [3]; hepatitis [4]; syphilis, measles, smallpox, and typhoid [5]; brucellosis [6]; kala-azar [7]; and infectious mononucleosis [8] are all known to have been transmitted by blood transfusion. The clinical course of these diseases, however, does not resemble that which we have observed. Furthermore, it has not been possible to demonstrate the appropriate abnormal laboratory findings usually associated with the more common of these diseases. It would seem, therefore, that we are dealing with an agent, the transmission of which by blood transfusion has not been previously described. Although this agent has not been identified, we have been able to obtain some suggestions about some of its characteristics from our studies.

It appears that the agent is self-propagating; the illness did not become less severe with successive subinoculation as might be expected as the result of dilution of a nonpropagating agent. The agent is filterable. These characteristics very strongly suggest that it is viral in nature. The agent further resembles some viral agents in the variability of the clinical picture from one passage to another. The earlier passages, for example, were characterized by a high fever and a short course. In more recent passages, afebrile courses of longer duration and late relapses have been more common. The agent did not appear infectious by the oral route, at least in the two patients so inoculated. There were no cross infections as might be expected were it transmitted through air-borne droplets. It is also of interest that the original source (K) was exposed to intravenous infection through use of self-injected doses of narcotics. Convalescent plasma could not be demonstrated to possess any definite neutralizing potency, a not at all surprising finding in view of the persistence of the agent in the blood of at least some individuals.

The finding that blood stored in the refrigerator in acid-citrate-dextrose solution for two days is still infectious is of some practical importance. Routine blood-banking practices would permit transmission of the agent. The original source of the infection was an apparently perfectly healthy male, one who but for the history of use of narcotics would have been considered an acceptable blood donor, even by the most rigid standards. It appears probable that other such healthy carriers exist and that their blood has been used for blood transfusion. It is equally likely, however, that the causal relationship between a blood transfusion and a self-limited febrile illness two weeks later in a single recipient would not be appreciated. The relationship between the transfusion and illness would certainly have escaped our attention had not five of six recipients almost simultaneously become ill; the distribution of aliquots of a single fresh blood sample to a number of recipients rarely, if ever, occurs in routine blood-banking practice.

SUMMARY

It has been demonstrated that the blood of an apparently healthy man induces an apparently self-limited, usually febrile, illness in a high proportion of men into whom it is inoculated intravenously. The clinical picture of this illness was characterized by fever, myalgia, and headache. In addition, upper respiratory and gastrointestinal symptoms were present in some of the patients. Aside from a slight leukopenia observed in most of the patients during the acute illness, extensive laboratory examinations were normal. A few late relapses were observed; some of these were characterized by the presence of arthralgia. The joint symptoms resembled those of rheumatoid arthritis; however, the absence of evidence of acute joint inflammation by physical examination, normal sedimentation rates, and negative C-reactive protein tests indicated that these volunteers did not actually develop rheumatoid arthritis. Complete recovery appeared to be the rule, both in the acute illness and in the late relapses. It was possible to serially transmit this illness by inoculating new recipients with the blood of men who were in the acute stages of this illness. Of 37 men inoculated intravenously with fresh plasma, red blood cells, or whole blood from the original source of this disease or from men in the acute symptomatic phase of the illness, 31 men, or 84%, developed typical symptoms within 30 days. It has been possible to transmit the disease from men in various stages of convalescence and through blood stored for 2 days at 4 C or for 19 to 29 days at −70 C. Two attempts at passage by the oral route were unsuccessful. No relationship between infectious hepatitis and other diseases heretofore reported as being transmissible by blood transfusion is apparent. The study suggests that the transmissible agent is viral in nature. Because the agent survives under blood-banking conditions and because it may be present in the blood of healthy volunteers, it is believed to represent another potential hazard in the transfusion of blood.

950 E. 59th St. (37) (Dr. Beutler).

---

[3] Antschelewitsch, W. D.: Transfusion von konserviertem Malarikerblut, Folia haemat. **57**: 406-416, 1937.

[4] Murray, R., and others: Carriers of Hepatitis Virus in the Blood and Viral Hepatitis in Whole Blood Recipients: 2. Confirmation of Carrier State by Transmission Experiments in Volunteers, J. A. M. A. **154**: 1072-1074 (March 27) 1954.

[5] Opitz, H.: Krankheitsübertragung durch Bluttransfusionen, Deutsche med. Wchnschr. **72**: 659-662, 1947.

[6] Piñero Garcia, P. P.: Brucelosis por hemo-transfusión, Día med., Buenos Aires **20**: 967-969, 1948.

[7] Chung, H. L.; Chow, H. K., and Lu, J. P.: The First Two Cases of Transfusion Kala-Azar, Chinese M. J. **66**: 325-326, 1948.

[8] DeVos, J. F., and Kuipers, F. H.: Een Geval van Mononucleosis infectiosa overgebracht door Bloedtransfusie, Nederl. Tijdschr. geneesk. **95**: 3036-3039, 1951.

RADIOACTIVE IODINE OR SURGERY IN TREATMENT OF HYPERTHYROIDISM

Dwight E. Clark, M.D.
and
James H. Rule, M.D., Chicago

A uniformity of opinion as to whether radioiodine or surgery should be the preferred type of definitive therapy in any given case of hyperthyroidism would be almost impossible to obtain. Some individuals are still of the opinion that all cases of thyrotoxicosis should be treated by surgical means. Miller[1] treats all cases of hyperthyroidism with radioiodine (I^{131}) regardless of the patients' age or type of gland, with the exception of those cases in which the condition is associated with pregnancy or lactation. He emphasizes, however, that the wholesale treatment of children for thyrotoxicosis should not be carried out, and he is only administering the isotope to children, as part of a long-term study. Chapman and his co-workers[2] have concluded that I^{131} should not be used in persons with either a single or multiple toxic nodular goiter, their reasons being the high incidence of carcinoma in clinically solitary nodules and that, although a multinodular goiter may diminish in size after I^{131} therapy, it may still harbor a carcinoma. During the past eight years we have had an opportunity to see and treat a large number of patients with primary or secondary hyperthyroidism with I^{131} or surgery, and in this interval we have established fairly definite criteria for the therapeutic application of I^{131}. These indications, with a few minor variations, agree with those of many other investigators who are using I^{131} in the treatment of hyperthyroidism.

CRITERIA FOR RADIOIODINE THERAPY

Almost all of the 700 patients that we have treated have met one or more of the following criteria: (1) uncomplicated hyperthyroidism in patients over 40 years of age; (2) recurrent or persistent hyperthyroidism after thyroidectomy; (3) hyperthyroidism with severe cardiovascular disease or some other concurrent disease; (4) failure to respond properly to antithyroid drugs; (5) refusal to accept surgical or other therapy; or (6) presence of severe exophthalmos. The possibility that radiation from I^{131} may induce a carcinoma of the thyroid has deterred us from using it in younger patients with uncomplicated thyrotoxicosis. To date, there have been no reports of adverse radiation effects in any patients who have received therapeutic doses of I^{131}. Since it will require many years to evaluate fully any possible long-range harmful effects of internal beta radiation on the thyroid or other tissues, we advocate surgery as the treatment of choice in patients under 40 years of age with uncomplicated primary or secondary hyperthyroidism. In skilled hands, the risk of surgery in this group is minimal. The mortality should be less than 0.5 of 1% and the complication rate less than 1%. There is very little morbidity, and the results are excellent.

Children with toxic diffuse goiter (Graves' disease) should probably never be treated with I^{131} unless complicating factors make the risk of surgery too hazardous or surgery is absolutely refused. We have treated only four patients who were under 20 years of age. One of these had had surgical treatment previously, and both the parents and the patient did not desire a second operation. Another had severe rheumatic heart disease. The third patient was 16 years of age, and both she and her parents refused to accept surgery. The fourth patient had severe exophthalmos, responded poorly to antithyroid drugs, and her parents did not want her subjected to surgery. Since the amount of radiation required to induce a carcinoma is not known, we are even reluctant to give children small tracer doses of I^{131} for thyroid function studies.

We have never encountered a carcinoma in a patient with toxic adenomatous goiter, and the reported incidence is less than 1%. Because of this we have not hesitated to treat such individuals over 40 years of age with I^{131} if the goiter is small or of moderate size. Individuals in the older age group with large toxic adenomatous goiters are better treated with surgery (see figure). Many of these have pressure symptoms from the enlarged thyroid, and, even though the thyrotoxicosis may be controlled with I^{131}, the size of the gland usually is not materially reduced.

In patients with recurrent or persistent hyperthyroidism, the preferable treatment is certainly use of I^{131}. Surgery in such cases is somewhat difficult, and the risk of recurrent nerve injury and removal of all the parathyroids is appreciable. I^{131} is the treatment of choice in all patients with a toxic goiter where the surgical risk is excessive because of secondary complications. Such complications include organic heart disease, kidney disease, pulmonary disease, mental disease, diabetes, hypertension, and severe rheumatoid arthritis.

We have had a small group of patients with idiosyncrasies to iodine or antithyroid drugs who could not be properly prepared for surgery. These patients have been treated with I^{131} with excellent results. Many patients are reluctant to undergo thyroidectomy and are not desirous of a long-continued course of antithyroid drugs. Since our experience with prolonged administra-

---

From the Department of Surgery and the Argonne Cancer Research Hospital, the University of Chicago.

Read before the Section on Surgery, General and Abdominal, at the 104th Annual Meeting of the American Medical Association, Atlantic City, June 8, 1955.

[1] Miller, E. R., in Radioiodine in the Diagnosis and Treatment of Thyroid Disease, panel discussion *in Transactions of the American Goiter Association*, Springfield, Ill., Charles C Thomas, Publisher, 1953, p. 85.

[2] Chapman, E. M.; Maloof, F.; Maisterrena, J., and Martin, J. M.: Ten Years' Experience with Radioactive Iodide, in Transactions of the American Goiter Association, Springfield, Ill., Charles C Thomas, Publisher, 1953, p. 121.

tion of antithyroid drugs as a definitive form of therapy has not been too encouraging, we have included this group in our indications for I^{131} therapy.

There is a variance of opinion as to the effect of I^{131} therapy on the course of exophthalmos. In our series of cases that we have treated with radioactive iodine, there were 189 patients with exophthalmos of varying degree (table 1). An increase in the exophthalmos was observed in only one patient after therapy. We were unable to evaluate adequately 30 patients. These were being followed elsewhere, and we were unable to determine whether the exophthalmos had improved or remained unchanged. Of the 159 patients who were evaluated satisfactorily, 49, or 30.8%, had complete regression; 88, or 55.4%, showed varying degrees of improvement; and in 16, or 10%, it was thought that the degree of exophthalmos remained the same. In five cases, post-therapeutic exophthalmos developed 6 weeks to 17 months after the administration of the I^{131}. It has been our impression that the improvement in exophthalmos with I^{131} therapy is somewhat better than with surgery. Perhaps even better results could be achieved if all of the patients with exophthalmos who are treated with I^{131} were given desiccated thyroid three to four weeks after the administration of the iodine to insure against the development of hypometabolism.

Elderly patient with a toxic multinodular goiter. The trachea was deviated and compressed, causing respiratory difficulty. She obtained an excellent result from surgery.

CONTRAINDICATION TO RADIOIODINE THERAPY

Contraindications to I^{131} therapy include (1) pregnancy and lactation, (2) clinical solitary nodule associated with hyperthyroidism, (3) nontoxic nodular goiter, and (4) nontoxic diffuse or simple goiter. We believe that the coexistence of hyperthyroidism and pregnancy is an absolute contraindication for I^{131} therapy. Chapman and his associates[3] have shown that I^{131} readily crosses the placental barrier and that the fetal thyroid is able to concentrate iodide after the third month. I^{131} has also been found in the milk of lactating women.

Because of the strong possibility of an existing carcinoma, patients with hyperthyroidism and a clinically solitary nodule should have surgery with or without I^{131} unless the nodule can be proved to be a hyperfunctioning adenoma by suitable techniques. Several of the patients in our I^{131} series had solitary nodules. In a few the nodules disappeared as the hyperthyroidism was controlled. We have considered these as representing hyperfunctioning adenomas and have not advised subsequent surgery. In the cases in which the solitary nodule persisted after the establishment of euthyroidism, surgery was strongly recommended. I^{131} will not appreciably alter the size of a nontoxic nodular goiter, and such conditions should be treated surgically if therapy is indicated.

TABLE 1.—*Course of Exophthalmos Following I^{131} Therapy*

Exophthalmos	Patients No.	Patients %
Complete regression	49	30.8
Improved	88	55.4
No change	16	10.1
Worse	1	0.6
Developed after therapeutic response	5	3.1
Total evaluated	159	100.0
Inadequately evaluated	30	....
Total cases of exophthalmos	189	(30.1% of total)

RESULTS OF RADIOIODINE THERAPY

Therapy has been completed in 628 patients, including 384 that have been reported on previously.[4] A few patients who had complete remission have been lost to recent check and are not included in the series. A small group of patients offered no opportunity for any follow-up after therapy either because they failed to return or because the referring physician was reluctant to forward such information. One of the big problems with this form of therapy is that many physicians who do not have a great deal of experience in the care of patients treated with I^{131} believe that one dose is all

TABLE 2.—*Gland Type and Therapeutic Result*

Gland Type	Therapeutic Result: Euthyroid	Therapeutic Result: Hypothyroid	Therapeutic Result: Post I^{131}* Recurrent	Total (%)
Diffuse	214	48	(2)	262 (41.7%)
Nodular	201	28	(1)	229 (36.5%)
Postsurgical recurrent	105	32	0	137 (21.8%)
Total (%)	520 (82.8%)	108 (17.2%)	(3)	628 (100.0%)

* These cases have all been treated again with I^{131} and are included in the euthyroid groups.

---

3. Chapman, E. M.; Corner, G. W., Jr.; Robinson, D., and Evans, R. D.: The Collection of Radioactive Iodine by the Human Fetal Thyroid, J. Clin. Endocrinol. 8: 717, 1948.

4. Clark, D. E.; Rule, J. H.; Trippel, O. H., and Cofrin, D. A.: Five Year Experience with Radioactive Iodine in the Treatment of Hyperthyroidism, J. A. M. A. 150: 1269 (Nov. 29) 1952.

that is required to assure a complete remission. If a remission is not accomplished by a single treatment, some will condemn the therapy or will allow the patient to continue inadequately treated.

Twenty-six in the group have died. In all of these patients, a complete remission of the thyrotoxicosis had been accomplished and the cause of death appeared to be unrelated to the isotope therapy. In the 628 cases followed carefully, the ratio of females to males was 3.5 to 1. Table 2 shows the therapeutic results in this group. Of the 262 patients with a toxic diffuse goiter, 214 became euthyroid and 48 hypothyroid. Two of the patients had a recurrence two and four years after a euthyroid state had been established. In 229 cases of toxic nodular goiter treated, 201 patients became euthyroid and 28 hypothyroid. A recurrence developed in one case five years after the patient had been treated successfully with I^{131}. Postsurgical recurrent thyrotoxicosis was seen in 137 cases; 105 patients had an excellent response, and 32 became hypothyroid following radioiodine therapy.

In all, 520, or 82.8%, of the patients became euthyroid. A total of 108, or 17.2%, developed varying degrees of hypometabolism, and the recurrence rate was approximately 0.5 to 1%. The incidence of hypometabolism may seem high, but in many of these cases the condition is extremely mild; perhaps some might not be considered to be hypothyroid by less critical standards. Furthermore, some of the patients showed a transitory hypometabolism that lasted for a few months to a year or more. It is possible that in time many of the milder cases of hypometabolism will not require any substitution therapy. A fair number of patients were purposely rendered hypometabolic in an attempt to improve their cardiac status; if one excludes the latter group and the extremely mild cases, the incidence of hypometabolism drops to 11%. This is comparable to that after surgery and certainly does not preclude the use of I^{131}.

TABLE 3.—*Number of Doses of I^{131} Required for Remission*

	Gland Type			Patients	
No. of Doses	Diffuse	Nodular	Recurrent	No.	%
1	164	102	86	352	56.1
2	52	75	33	160	25.5
3 or more	46	52	18	116	18.4
Total	262	229	137	628	100.0

The number of doses required to effect a remission is shown in table 3. Only one dose was necessary for 352, or 56.1%, of the patients; two doses were required for 160 patients, or 25.5%; and 3 or more doses for the remainder. There was complete remission with one or two doses in 81.6% of the 628 patients. There has been no radiation sickness and no evidence of bone marrow depression or injury to the parathyroids, kidneys, or bladder. Menstrual abnormalities have not been observed. Some of the patients subsequently became pregnant and delivered healthy children.

From these results, I^{131} is apparently an excellent means for treating selected cases of thyrotoxicosis and offers many advantages over surgery. There is no mortality, no parathyroid destruction, and no recurrent nerve damage. Its cost is relatively inexpensive compared with that of surgery. No hospitalization is required, virtually no time is lost from work, and the administration is painless and produces an excellent cosmetic result. Furthermore, the recurrence rate is negligible, the incidence of hypometabolism is comparable to that observed after surgery, and the isotope should be effective in all cases of true hyperthyroidism if given in adequate amounts.

The untoward effects are minimal. A moderate number of patients have noted tenderness in the region of the thyroid gland after I^{131} therapy. This usually appears one to three days after the administration of I^{131} and continues for several days to a week. Furthermore, some patients complained of a sensation of constriction in the neck beginning five to six weeks after therapy and continuing for a considerable period of time. A few patients had symptoms suggestive of gastritis a few days after therapy. Once the fear of carcinogenesis has been dispelled, I^{131} should also become the treatment of choice in young persons with uncomplicated hyperthyroidism unless a better and nondestructive method of therapy is forthcoming.

SUMMARY

Our criteria for the use of radioiodine (I^{131}) in the treatment of hyperthyroidism are as follows: uncomplicated hyperthyroidism in patients over 40 years of age; recurrent or persistent hyperthyroidism following thyroidectomy; hyperthyroidism complicated by some other concurrent disease; idiosyncrasies to antithyroid drugs; refusal to accept surgical therapy; or severe exophthalmos. Contraindications for I^{131} therapy are as follows: uncomplicated hyperthyroidism in patients under 40 years of age; hyperthyroidism in children; large toxic nodular goiter; hyperthyroidism complicated by pregnancy and lactation; hyperthyroidism associated with a clinical solitary nodule; nontoxic nodular goiter or nontoxic diffuse or simple goiter.

In 628 hyperthyroid patients treated with I^{131}, 520, or 82.8%, of the patients became euthyroid. A total of 108, or 17.2%, developed varying degrees of hypometabolism. Complete remissions were obtained in 81.6% of the 628 patients with one or two doses of I^{131}. The results indicate that radioiodine therapy has certain advantages over surgery in selected cases of thyrotoxicosis.

950 E. 59th St. (37) (Dr. Clark).

Asthma.—Asthma can be treated successfully. Most patients can be cured by removal of offending antigens, once an etiological diagnosis is made. A few receive aid from psychiatry. Etiology can not always be determined. Frequently simple medication like epinephrine suffices. A few require one of the corticosteroids to prevent invalidism. Long-term maintenance steroid therapy remains hazardous and requires cooperation of patient and physician. Such therapy must be justified in each patient individually. Since the adrenocortical steroids are effective and since they may cause serious side-reactions, the importance of making an etiological diagnosis has increased.—W. S. Burrage, M.D., H. C. Mansmann Jr., M.D., and J. W. Irwin, M.D., Current Methods of Diagnosis and Treatment of Asthma, *A. M. A. Archives of Internal Medicine,* September, 1955.

INTRAVENOUS CHOLANGIOGRAPHY

RESULTS IN ONE HUNDRED CHOLECYSTECTOMIZED PATIENTS WITH UPPER ABDOMINAL SYMPTOMS

David J. Sandweiss, M.D.
and
Harold Fulton, M.D., Detroit

It is generally conceded that after cholecystectomy performed for cholelithiasis moderate to severe postoperative symptoms occur in from 10 to 25% of patients.[1] When cholecystectomy is performed for the so-called noncalculous gallbladder, symptoms persist in about 50% of the patients.[2] The possible causes for persistent or recurrent symptoms are many. They include calculi in the hepatic, common, or cystic ducts; stone or inflammation of the gallbladder stump; common duct stricture; residual cholangitis, hepatitis, and pancreatitis; neuromas about the common duct; postoperative adhesions; biliary dyskinesia; and, not infrequently, erroneous preoperative diagnoses or associated diseases, such as hiatal hernia, unrecognized malignant lesion, gastric or duodenal ulcer, arthritis of the spine, or psychoneurosis. These patients present a real challenge to the clinician.

This communication is concerned chiefly with a roentgenologic study of the hepatic and common bile ducts in 100 cholecystectomized patients who experienced moderate to severe epigastric and/or right upper quadrant distress that represented or simulated biliary tract disease. Ninety of the 100 patients are known to have had gallstones at the time of the cholecystectomy. We used the recently introduced intravenously given contrast medium sodium iodipamide (Cholografin), first reported by Frommhold[3] and subsequently by several other European workers.[4] To date, three preliminary reports have been published in this country, those of Berk and associates,[5] Orloff and his associates,[6] and Fulton and Sandweiss.[7]

Sodium iodipamide is a 20% solution containing as its essential agent the di-sodium salt of N,N′-adipyl-bis-(3-amino-2,4,6-triiodo-benzoic acid). The iodine content of the compound is 64.32%. Following its intravenous administration, 90% is excreted by the liver; the remaining 10% passes out through the urinary tract except where liver function is impaired, in which case a higher percentage is excreted by the kidneys. The medium appears in the bile in high concentration a few minutes after the injection, and sufficient medium may be present in the bile to allow visualization of the bile ducts on roentgenograms 10 to 20 minutes after intravenous administration.

METHOD OF STUDY

Patients are prepared as for cholecystography. Following exposure of a preliminary roentgenogram of the right upper abdominal quadrant, 1 cc. of the contrast medium is injected intravenously as a test dose and the patient is observed for 10 minutes. If no reaction to the substance is apparent, 20 to 40 cc. of the material is injected intravenously at a very slow rate (six to eight minutes for injection). Roentgenograms of the bile duct area are then exposed in a serial fashion at completion of the injection and at 10 minute intervals thereafter for a period of one hour. The usual roentgenographic technique for cholecystography is employed. The diameter of the common duct was determined by measurement directly on the roentgenograms, using the method suggested by Berk and associates,[5] namely, measuring the transverse diameter at the widest portion of the visualized duct system. We selected an arbitrary upper limit for normal as 8 mm., in conformity with the findings of Royer and co-workers[8] and Berk and his co-workers.[5]

RESULTS

The major hepatic bile ducts and common bile ducts were faintly outlined on the 10 minute exposures and more densely on the 20 minute exposures. Later roentgenograms showed the smaller biliary radicles, the right and left common hepatic ducts, common bile duct, and, in some instances, the cystic duct. The common duct and hepatic radicles were visualized in 94 (94%) of the 100 cases. In one patient (with a choledochoduodenostomy) the common duct was initially dilated with gas (22 mm. in width), and the intravenously administered sodium iodipamide did not further outline the

---

From the departments of internal medicine and radiology, Harper Hospital.

The sodium iodipamide used in this study was supplied as Cholografin by Dr. Mark H. Lund, Squibb Institute for Medical Research, New Brunswick, N. J.

[1] Portis, S. A.: Diseases of the Digestive System, Philadelphia, Lea & Febiger, 1953, p. 555. Bockus, H. L., and Dozzi, D. L.: Persistence of Symptoms After Gallbladder Operation, in Gastro-Enterology, vol. 3, Diagnosis and Treatment of Disorders of the Liver, Gallbladder, Biliary Tract and Pancreas; Intestinal Parasites and Secondary Gastro-Intestinal Disorders, Bockus, H. L., editor, Philadelphia, W. B. Saunders Company, 1946, p. 616. Meyers, S. G.; Sandweiss, D. J., and Saltzstein, H. C.: End Results After Gall-Bladder Operations, with an Analysis of the Causes of Residual Symptoms, Am. J. Digest. Dis. **5**: 667, 1938.

[2] Whipple, A. O.: Surgical Criteria for Cholecystectomy, Am. J. Surg. **40**: 129, 1926. Footnote 1.

[3] Frommhold, W.: A New Type Contrast Medium for Intravenous Cholecystography, Fortschr. Geb. Röntgenstrahlen **79**: 283, 1953.

[4] Gaebel, E., and Teschendorf, W., cited by Berk, J. E.; Karnofsky, R. E.; Shay, H., and Stauffer, H. M.: Intravenous Cholecystography and Cholangiography: Report of Preliminary Observations, Am. J. M. Sc. **227**: 361, 1954. Püschel, C.: Clinical and Roentgenological Experiences with the New Intravenous Biliary Contrast Medium, "Biligraffin," Deutsche med. Wchnschr. **78**: 1327, 1953. Hornykiewytsch, T., and Stender, H. S.: Intravenous Cholangiography, Fortschr. Geb. Röntgenstrahlen **79**: 292, 1953. Nemours-Auguste, S., and Barag, N.: Intravenous Cholangiocholecystography: Opacification of the Intra-Hepatic and Extra-Hepatic Bile Ducts by a New Substance, Presse méd. **61**: 1244, 1953.

[5] Berk, J. E.; Karnofsky, R. E.; Shay, H., and Stauffer, H. M.: Intravenous Cholecystography and Cholangiography: Report of Preliminary Observations, Am. J. M. Sc. **227**: 361, 1954.

[6] Orloff, T. L.; Sklaroff, D. M.; Cohn, E. M., and Gershon-Cohen, J.: Intravenous Choledochography with a New Contrast Medium, "Cholografin," Radiology **62**: 868, 1954.

[7] Fulton, H., and Sandweiss, D. J.: Intravenous Cholangiography: Preliminary Report, Harper Hosp. Bull. **12**: 106, 1954.

[8] Royer, M.; Mazure, P., and Kohan, S.: Biliary Dyskinesia Studied by Means of the "Peritoneoscopic Cholangiography," Gastroenterology **16**: 83, 1950.

duct system. In the remaining five cases of nonvisualization there was impairment of liver function as evidenced by chemical tests.

In 41 of the 94 patients (44%), the terminal end of the common duct could not be seen. Sixty-four (68%) of the 94 patients showed common ducts ranging in width from 3 to 8 mm. (table 1, fig. 1). In 3 (5%) of these 64 patients, stones were apparent on the cholangiograms (table 2, fig. 2). In the remaining 30 (32%) of the 94 patients, the common ducts ranged in width from 9 to 26 mm. (table 1, fig. 3). In 5 (17%) of these 30 patients stones were diagnosed by cholangiography. In four of these five patients the calculi were definitely apparent, and in one a stone was suspected. In the latter case an abrupt transverse termination of the common duct suggested the presence of an impacted stone. To date, five of the eight patients in whom diagnosis of stones was made by intravenous cholangiography have been operated upon. In four patients the presence of common duct stone was confirmed. In the patient with the suspected stone, the common duct was found to be dilated but free of calculus. Of the seven patients with definite cholangiographic evidence of common duct stones, five experienced episodes of colic and three of the five patients had had jaundice during the colic episodes. Two of the seven patients with common duct stones had neither colic nor jaundice (table 2). Of the 25 patients with dilated common ducts without stones, none had jaundice and only one patient had colic.

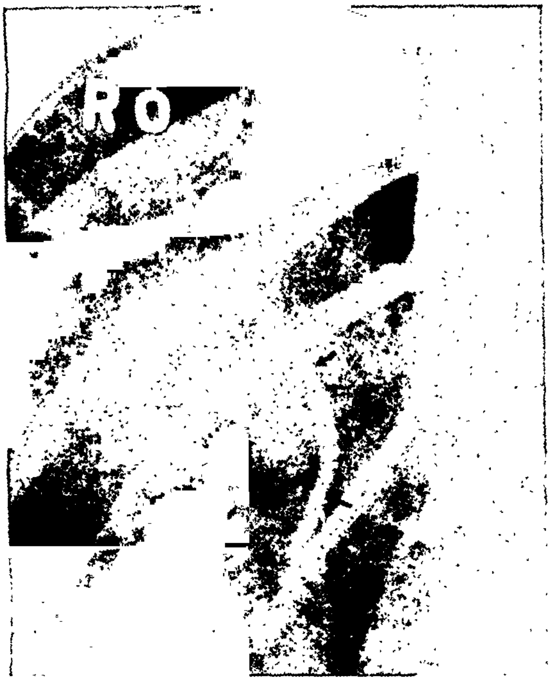


Fig. 1.—Intravenous cholangiogram showing normal-sized (4 mm. width) common duct.

Excluding duplications, of the 94 patients whose common ducts were visualized (table 3), 34 patients (36%) showed normal cholangiograms, 7 patients (7%) showed stones in the common duct, and 3 patients (3%) showed dilated cystic duct stumps or "reformed" gallbladders. In this group of 44 patients (46%) the cholangiographic findings were either definitely normal or definitely abnormal. Twenty-five (27%) of the 94 patients showed moderate to marked dilatation of the common ducts, but stones were not seen on the cholangiograms. In 24 patients (26%) the common ducts were of normal width, but the terminal ends of the ducts were not visualized. In this group of 49 patients (53%) the cholangiographic findings were equivocal. In one pa-

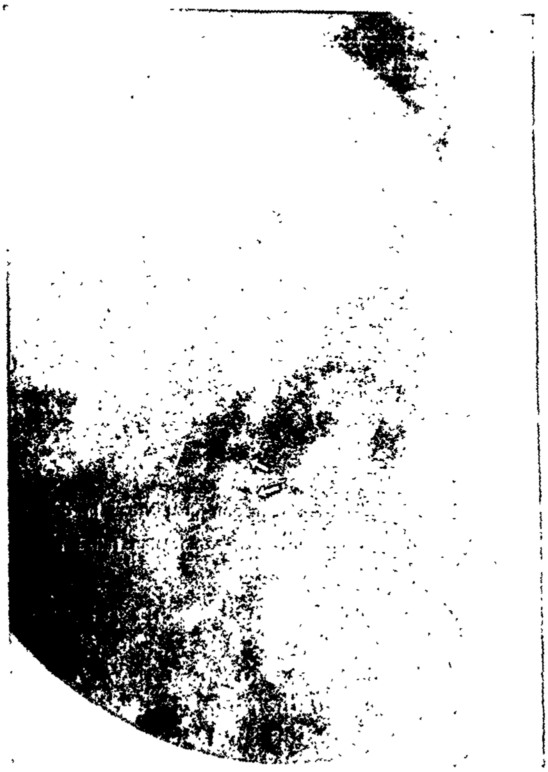


Fig. 2.—Intravenous cholangiogram showing normal-sized (6 mm. width) common duct that contains two calculi (arrows). The two small black objects to the left of the duct represent the actual calculi.

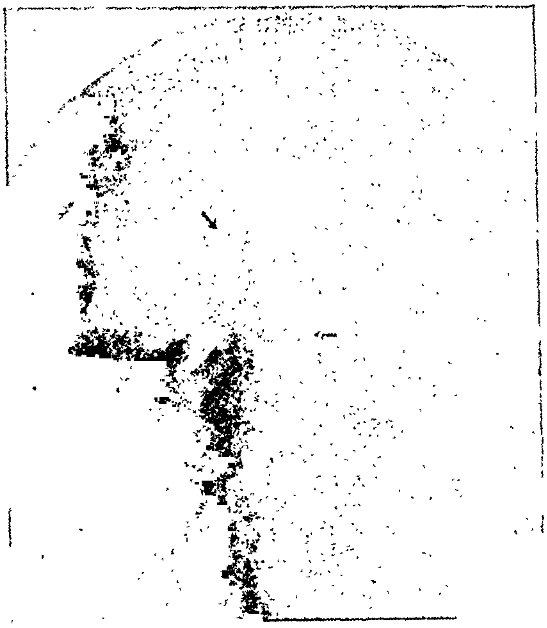


Fig. 3.—Intravenous cholangiogram showing dilated (14 mm. width) common duct. The terminal end of the duct is not visualized. The upper arrow indicates a cystic duct stump.

tient (1%), cholangiographic interpretation was in error: the common duct was found to be dilated (16 mm.) on the roentgenograms and a stone was suspected; however, at exploration, though the common duct was dilated, it was patent and a calculus was not found.

Of the 30 patients whose common ducts were 9 to 26 mm. in width, 28 patients (93%) had had their cholecystectomies from 1 to 28 years prior to the cholangiographic study (table 1). Of the 64 patients whose common ducts were 3 to 8 mm. in width, 50 patients (78%) also had their cholecystectomies from 1 to 29 years prior to this study (table 1). On the basis of the detailed data in table 1, it appears that the width of the common duct does not necessarily depend on the interval of time between cholecystectomy and cholangiography.

TABLE 1.—*Relation Between Common Duct Width and Interval Between Cholecystectomy and Cholangiography in Ninety-Four Patients*

Time Interval	Common Duct Width 3-6 Mm.	7-8 Mm.	9-12 Mm.	13-26 Mm.
3-6 mo.	6	1	1*	..
7-12 mo.	3	4	..	1*
1-2 yr.	3†	1	..	1
2-4 yr.	3†	10	1	1*
4-6 yr.	2	4†	3†	..
6-8 yr.	5	2	4	1
8-10 yr.	1	..	2	2
10-15 yr.	5	1	1	3‡
Over 15 yr.	8	5	4	5
Total	36	28	16	14

* Cholangiographic evidence of common duct stone.

† Cholangiographic evidence of common duct stone in one of the patients in each group.

‡ Stone suspected on cholangiograms; exploration failed to yield a common duct stone.

Several patients displayed minor reactions after intravenous administration of the full dose of sodium iodipamide, but none reacted to the test dose. The reactions consisted of a burning sensation over the substernal area, a sensation of warmth over the face, or transient urticarial wheals. One patient developed pain that lasted about 24 hours at the injection site. The most marked reaction was experienced by an 80-year-old woman with liver dysfunction, whose common duct was not visualized by intravenous cholangiography. She developed nausea, vomiting, and epigastric distress 10 minutes after administration of the contrast medium. The symptoms subsided shortly after an intravenously given dose of 50 mg. of diphenhydramine (Benadryl).

TABLE 2.—*Patients with Common Duct Stones Revealed by Intravenous Cholangiography*

Case No.	Cholangiography Width of Duct, Mm.	Stone Present	Terminal End Visualized	Colic	Jaundice
1	4	Yes (4)	Yes	Yes	No
2	6	Yes (2)	No	Yes	No
3	8	Yes (1)	Yes	No	No
4	10	Yes (1)	Yes	No	No
5	10	Yes (3)	No	Yes	Yes
6	16	Suspected*	No	Yes	No
7	20	Yes (2)	No	Yes	Yes
8	21	Yes (2)	No	Yes	Yes

* Exploration failed to yield a common duct stone.

COMMENT

Two methods are presently being employed in nonsurgical visualization of the common duct in postcholecystectomy patients: oral cholangiography[9] and intravenous cholangiography.[10] Our experience with the former method (using iodopanoic acid [Telepaque]) is encouraging and is being extended. Our experience with the intravenous method (using sodium iodipamide) in 100 cholecystectomized patients with epigastric and/or right upper quadrant symptoms suggestive of biliary tract disease warrants the following comments: The demonstration of a calculus in the common duct of a cholecystectomized patient is the most dramatic and gratifying result of this new cholangiographic technique. However, this occurred in only 7% of our patients. Failure to demonstrate calculi roentgenographically does not necessarily prove that calculi are not present, especially if the *terminal end of the common duct is not delineated* by the contrast medium.

TABLE 3.—*Cholangiographic Findings in Ninety-Four Patients**

Normal cholangiograms	34 (36%)
Stones in common ducts (in 3 patients with common ducts of normal width; in 4 patients with dilated common ducts)	7 (7%)
Dilated cystic duct stumps or "reformed" gallbladders	3 (3%)
Dilated common ducts without apparent stones	25 (27%)
Common ducts of normal width and without apparent stones but with nonvisualization of the terminal ends of the common ducts	24 (26%)†
Dilated common duct with a stone suspected on the cholangiogram but no common duct stone found on exploration	1 (1%)
Total	94 (100%)

* Excluding duplications.

† These refer only to the patients whose common ducts were of normal width and whose cholangiograms did not show stones; however, of the total 94 patients in this series, the terminal end of the common duct could not be seen in 41 (44%) patients.

In 34 (36%) of the 94 patients the cholangiograms were interpreted as normal. In these cases the common duct and its terminal end were well visualized, the width of the duct was within normal limits, and stones were not seen or suspected. The finding of a normal cholangiogram in a cholecystectomized patient with epigastric and/or right upper quadrant distress is of great diagnostic value indeed. However, more experience is necessary to determine the incidence of false negative cholangiograms in these patients. In 64 patients the common ducts were of normal width; in this group of patients, 5% showed stones. In the remaining 30 patients, the common ducts were dilated, and in this group 83% failed to show stones on the cholangiograms. The significance of dilatation of the common duct is not yet clear. In any event, it appears that stones may exist without dilatation of the common duct and, conversely, that a dilated common duct may exist in the absence of apparent stones. In 41 (44%) of the 94 patients the terminal end of the common duct was not seen. This is a definite limitation to intravenous cholangiography; however, there is hope that, with improved contrast mediums, with improved technique, with the use of pharmacological agents that act on the sphincter of Oddi, and with greater experience, this limitation will be eliminated or at least reduced.

---

[9] Twiss, J. R.; Beranbaum, S. A.; Gillette, L., and Poppel, M. H.: Post-Cholecystectomy Oral Cholangiography: A Preliminary Report, Am. J. M. Sc. 227:372, 1954.

[10] Footnotes 3, 4, 5, 6, and 7.

That cholecystectomized patients with common duct stones may experience mild to severe epigastric or right upper quadrant distress without colic, without icterus, or without dilatation of the common duct is not too well known (table 2). This was stressed by Alvarez[11] in 1945, when he called attention to the fact that occasionally patients may have stones in the bile ducts with very few, if any, symptoms. When symptoms persist or recur after cholecystectomy, the absence of colic or icterus does not rule out the possibility of common duct stone.

In six of our patients the bile ducts failed to visualize. Five of the six showed impairment of hepatic function evidenced by abnormal liver function tests. Frommhold[8] and Berk and co-workers[12] imply that failure to visualize the extrahepatic bile ducts might be interpreted as an abnormal liver function test. The latter workers reported that, of six patients with nonvisualized ducts, two had hyperbilirubinemia and five showed some abnormality of the hepatic profile. The possible correlation between nonvisualization of ducts by intravenous cholangiography and hepatic impairment as measured by liver function tests warrants further study.

Does the common duct dilate as a compensatory mechanism following cholecystectomy? On the basis of autopsy findings Puestow and Morrison[13] as well as Benson[14] believed that it does. However, our data, on the basis of cholangiographic measurements in cholecystectomized patients, fail to corroborate this contention. Only 30 (32%) of the 94 cholecystectomized patients showed moderate to marked dilatation of the common ducts (table 1). When we excluded the four patients in this group with definite cholangiographic evidence of stones, only 26 (29%) of the 90 patients showed unexplained common duct dilatation. More impressive evidence that the common duct does not necessarily dilate as a compensatory mechanism after cholecystectomy is suggested by our finding that 64 (68%) of the 94 cholecystectomized patients showed common ducts ranging in width from 3 to 8 mm. This was true both for the 50 patients on whom cholecystectomy was performed 1 to 29 years previously, as well as for the 14 patients on whom cholecystectomy was performed 1 to 11 months prior to the cholangiographic study (table 1).

SUMMARY AND CONCLUSIONS

One hundred cholecystectomized patients with mild to severe epigastric and/or right upper quadrant symptoms that represented or suggested biliary tract disease were studied by the intravenous method of cholangiography, using the recently introduced contrast medium sodium iodipamide (Cholografin). The common duct and hepatic radicles were visualized roentgenographically in 94 (94%) of the 100 patients. Excluding duplications, 34 (36%) of the 94 patients showed normal cholangiograms; 7 patients (7%) showed stones in the common ducts; and 3 patients (3%) showed dilated cystic duct stumps or "reformed" gallbladders. In this group of 44 patients (46%) the cholangiographic findings were clearly positive or negative and were of distinct value, despite the fact that the incidence of false negative cholangiograms is not yet known. Twenty-five patients (27%) had unexplained moderate to marked dilatation of the common ducts, and 24 patients (26%) showed common ducts of normal width without apparent stones but with the terminal ends of the ducts not visualized. In this group of 49 patients (53%) the roentgen findings were equivocal. In one patient (1%) with a dilated common duct, a stone was suspected but was not found at exploration. Of the total 30 patients with dilatation of the ducts, 4 (13%) showed definite stones on the cholangiograms. Of the 64 patients with ducts considered to be of normal width, 3 (5%) showed stones. Of the 30 patients with dilated ducts, 25 (83%) failed to show calculi by cholangiography. The significance of dilatation of the common duct without apparent stone is not as yet clear, though a number of these patients might have stones that are not visualized by intravenous cholangiography. It appears that the width of the common duct as measured on the roentgenograms depends neither on the presence or absence of visualized stones nor on the interval of time between cholecystectomy and cholangiographic study. On the basis of our findings it appears that the common duct does not necessarily dilate, as a compensatory mechanism, following removal of the gallbladder. There are several limitations at the present time to intravenous cholangiography: In patients with jaundice, bile duct visualization apparently fails. In nonicteric patients with impaired liver function, bile duct visualization also fails. In 44% of the patients in this series, the terminal end of the common duct, a critical area, was not visualized.

9739 Dexter Blvd. (6) (Dr. Sandweiss).

---

11. Alvarez, W. C.: Silent Gallstones in the Common Bile Duct, editorial, Gastroenterology **4**: 509, 1945.

12. Berk, J. E.; Stauffer, H. M.; Shay, H., and Karnofsky, R. E.: The Normal and Abnormal Biliary Tract as Shown by Intravenous Cholecystography and Cholangiography, Gastroenterology **28**: 230, 1955.

13. Puestow, C. B., and Morrison, R. B.: The Relationship of Cholecystitis and Cholecystectomy to Dilatation of the Choledochus, Ann. Surg. **101**: 599, 1935.

14. Benson, K. W.: Dilatation of the Bile Ducts and Its Relation to Distress After Cholecystectomy, Am. J. Digest. Dis. **7**: 1, 1940.

Agammaglobulinemia.—Agammaglobulinemia is now a well established and widely recognized clinical entity. It has been seen most frequently in young boys but has also been observed occasionally in adults, both male and female. The outstanding characteristic of this anomaly is the inability to elaborate gamma globulin, including antibodies, and the consequent marked susceptibility to infections, although all other serum protein fractions are normal. . . . The pathogenesis of agammaglobulinemia is obscure. It has been proposed . . . that there are two mechanisms, the one operating in children being hereditary and the one creating the defect in adults being acquired. The occurrence of the anomaly in siblings . . . lends support to the hypothesis that it is genetically determined even when appearing in adults. Simple presumptive tests for the defect when suspected clinically are the demonstration of absence of isohemagglutinins and an unexpectedly slow erythrocyte sedimentation rate. Although the defect appears to be permanent, its effects may in many instances be ameliorated by the administration of adequate amounts of gamma globulin and the appropriate use of antibiotics.—T. H. Brem, M.D., and M. E. Morton, M.D., Defective Serum Gamma Globulin Formation, *Annals of Internal Medicine,* September, 1955.

[illegible] Medical College

INFLUENCE OF THE LIVER ON BONE METABOLISM

REPORT OF TWO CASES

M. Hines Roberts, M.D.
and
Cary Sullivan, M.D., Atlanta, Ga.

This paper concerns the history of two children with unusual liver pathology. The chief interest lies in the extensive bone changes that occurred in each instance. Although the primary etiology of the liver disorder in the two cases is obviously quite different, the changes in the skeletal system were similar in that extensive osteoporosis had taken place at some time during the course of the illness in both children. There is considerable information available as to the influence of the liver upon calcium and phosphorus metabolism; however, the explanation of the extensive osteoporosis occasionally observed in liver disease is not clear.

Pavlov[1] demonstrated many years ago that dogs with biliary fistulas developed extensive osteoporosis. It was assumed that this condition resulted from the absence of bile salts, which promote vitamin D and calcium absorption. Seidel[2] reported bone atrophy in two patients with bile fistulas of long duration. Tammann[3] showed that parenterally given vitamin D alleviated the osteoporosis resulting from the absence of bile in the gastrointestinal tract. Whipple and associates[4] demonstrated that osteoporosis in dogs with biliary fistulas was prevented by feeding liver to these animals. He felt that the absence of bile salts alone probably did not explain the entire picture and postulated the existence of an unknown substance elaborated by the liver and absorbable through the gastrointestinal tract, which prevented decalcification of bone. Buchbinder and Kern[5] reported low serum calcium levels following ligation of the bile duct in animals. They also reported low calcium levels in humans exhibiting jaundice. They found that calcium levels returned to normal when jaundice cleared. The occurrence of osteoporosis in patients with biliary atresia has been reported in infants who survived for a considerable period of time. Dr. Park[6] states that osteoporosis is regularly seen in such patients.

We have observed extensive bone changes in children with congenital anomaly of the bile ducts. Figure 1 was made from a boy, aged 5½, who was jaundiced from birth and who, at 8 months of age, was operated on for biliary obstruction. Laparotomy revealed an absence of bile ducts. It will be noted that the shaft of the ulna shows marked widening, resulting from an expanded medulla and accompanied by great thinning of the cortex. This patient's blood calcium level was 5 mg. per 100 cc., with a total serum protein level of 4.6 gm. per 100 cc. The phosphorus level was 4.3 mg. per 100 cc. and alkaline phosphatase 15.5 King-Armstrong units per 100 cc. He died at age 6. Ahrens and co-workers[7] reported four cases of atresia of intrahepatic bile ducts in whom clinical and roentgenologic evidence of rickets with extensive osteoporosis was observed. These patients usually had low blood calcium and phosphorus levels with elevated alkaline phosphatase. They apparently were able to control rickets by administering large doses of vitamin D parenterally and orally, with restoration of normal calcium, phosphorus, and phosphatase levels; however, extensive osteoporosis persisted until the death of the patients. Krahulik and co-workers[8] report the case of a Negro boy with congenital obliteration of the bile ducts in whom typical ricket-like changes were observed at the age of 4 months accompanied by low blood calcium and phosphorus levels and elevation of phosphatase level. At 20 months extensive osteoporosis was observed in the long bones, which condition persisted until the boy's death at the age of 9 years 3 months.

Hansen and McQuarrie[9] reported the case of a boy, aged 10, with marked lipemia and osteoporosis, who at autopsy was shown to have a carcinomatous hepatoma. There were present also on histological examination lipid-filled cells that simulated xanthomatosis. Interestingly enough, our case, which at biopsy revealed carcinomatous cells, also showed lipid-filled cells thought to be of the Gaucher type. Calcium and phosphorus balance studies in the case of Hansen and McQuarrie revealed the storage of these minerals to be far below the normal amount. These authors concluded that osteoporosis observed in carcinoma of the liver may be due to lack of some unknown factor normally present.

REPORT OF CASES

Case 1.—A boy, aged 17 months, was admitted to Henrietta Egleston Hospital, May 30, 1950. He had exhibited increasing abdominal swelling for the past month, which his pediatrician attributed to the liver extending beyond the midline and to the pelvic brim. A laparotomy revealed a large smooth liver with prominent veins. Histological studies showed vacuolated liver cells containing what was thought to be excessive amounts of

---

Read before the Eighth Clinical Meeting of the American Medical Association, Miami, Fla., Nov. 30, 1954.

[1] Pavlov, cited by Greaves, J. D., and Schmidt, C. L. A.: Studies on Calcium and Phosphorus in Bile-Fistula Dogs, Proc. Soc. Exper. Biol. & Med. **29**: 373, 1932.

[2] Seidel, H.: Permanente Gallenfistel und Osteoporose beim Menschen, München. med. Wchnschr. **57**: 2034, 1910.

[3] Tammann, H.: Über die Beeinflussung der porotischen Osteomalazie nach Gallenfistel durch das D-Vitamin, Beitr. klin. Chir. **142**: 83, 1928.

[4] Whipple, G. H.: The Origin and Significance of the Constituents of the Bile, Physiol. Rev. **2**: 440, 1922. Hawkins, W. B., and Whipple, G. H.: Bile Fistulas and Related Abnormalities; Bleeding, Osteoporosis, Cholelithiasis and Duodenal Ulcers, J. Exper. Med. **62**: 599, 1935. Wisner, F. P., and Whipple, G. H.: Variations in Output of Bile Salts and Pigments During 24-Hour Periods: Observations on Standard Bile Fistula Dogs, Am. J. Physiol. **60**: 119, 1922.

[5] Buchbinder, W. C., and Kern, R.: Blood Calcium Deficiency in Experimental Obstructive Jaundice, Am. J. Physiol. **80**: 273, 1927.

[6] Eliot, M. M., and Park, E. A.: Rickets, in Practice of Pediatrics, Brennemann, J., editor, Hagerstown, Md., W. F. Prior Company, 1948, vol. 1, chap. 36, p. 83.

[7] Ahrens, E. H., Jr.; Harris, R. C., and MacMahon, H. E.: Atresia of the Intrahepatic Bile Ducts, Pediatrics **8**: 628, 1951.

[8] Krahulik, L., and others: Congenital Obliteration of the Bile Ducts with Particular Reference to Dietotherapy, J. Pediat. **41**: 774, 1952.

[9] Hansen, A. E.; Ziegler, M. R., and McQuarrie, I.: Disturbance of Osseous and Lipid Metabolism in a Child with Primary Carcinoma of the Liver, J. Pediat. **17**: 9, 1940.

glycogen. A diagnosis of glycogen storage disease was made, and the child was referred to us for further studies. The family history was noncontributory, as was the child's past history, except that two months prior to admission to Egleston Hospital the boy suffered a greenstick fracture of the right humerus resulting from a minor fall. The physical examination was essentially negative except for the abdomen, which revealed a smooth, hard, nontender liver extending 13 cm. below the costal margin in the midclavicular line on the right and almost to the anterior axillary line on the left (fig. 2*A*). The fingernails were striking; they were thin and spoon-shaped with two or three linear ridges extending longitudinally along each nail.

Table 1 gives in detail all laboratory data obtained on the six occasions the boy was studied. It will be noted there was a slight anemia, the glucose tolerance curve was rather flat, and the epinephrine test showed adequate blood sugar response. The slides of the liver biopsy, taken before admission to Egleston, were reviewed by the department of pathology at Emory University. It was felt that the amount of glycogen present in the liver cells was within normal limits. Much fibrous tissue was seen, however, that suggested the diagnosis of cirrhosis, probably secondary to infectious hepatitis. X-ray studies of long bones failed to reveal any evidence of widespread osteoporosis at this time. There was a low-grade fever noted during the week the child remained in the hospital. The treatment was primarily dietary with high protein and carbohydrate and low fat intake supplemented by vitamins, iron, and choline by mouth and liver extract and vitamin A given parenterally. He returned home June 7 and remained there until Aug. 3, 1950. During this period the patient sustained pathological fractures of the right humerus, left tibia, and right femoral head. There had been no history of trauma.

On admission Aug. 3, 1950, the boy was quite irritable and in considerable pain when moved, due to fractures. There was a striking reduction in the size of the liver from the former low of 13 cm. to only 8 cm. now below the costal margin. The spleen was felt for the first time 2 cm. below the costal margin. The nails were approaching normal, having lost most of the linear markings and their peculiar shape. It was noted that the scleras were blue. X-ray studies revealed general decalcification of all long bones with pathological fractures involving the lower fifth of the left femur and the right femoral neck (fig. 2). There was some evidence of callous formation. Evidence of disturbance in calcium metabolism suggested further laboratory studies, which are shown in table 1. The cholesterol level rose to 480 mg. per 100 cc., blood calcium level was normal, but phosphorus level was low. Some rise in blood pigments occurred but not enough to produce jaundice. Nitrogen studies revealed a positive balance. The cephalin flocculation test was 2+. Fractures were immobilized, and the patient returned home on Aug. 17.

On Oct. 25, 1950, he was admitted for reevaluation. He was in excellent general health. The splints had been removed, permitting movement of extremities without pain. The liver was now found to be only 5 cm. below the costal margin but was hard and rather nodular. The tip of the spleen was just felt, and the nails were normal in appearance. The laboratory data on this admission revealed little new of importance. The boy was walking about his crib, comfortable and happy before discharge on Oct. 27, 1950.

On Jan. 15, 1951, he was seen in the outpatient department and appeared in robust health. He weighed 28 lb. 3 oz. (12.8 kg.) and was 32.5 in. (82.55 cm.) tall. He had been walking well for two months. His progress was satisfactory until September, 1951, when his appetite became poor and he tired easily. He was readmitted to Egleston Hospital on Oct. 30, 1951. He had had an upper respiratory infection for the past three weeks, and on Oct. 24 the temperature suddenly rose to 103 F (39.4 C). He was examined by his pediatrician at home, who found an inflamed throat and a liver down again 12 cm. below the costal margin. Chloramphenicol was given, which controlled the fever.

TABLE 1.—*Laboratory Findings in Patient of Case 1*

Studies	May, 1950	Aug., 1950	Oct., 1950	Jan., 1951	Oct., 1951	Nov., 1951
Urine	Trace albumin	Negative	......	Negative	Trace albumin	......
Hemoglobin level, gm. per 100 cc.	13	12.4	14.5	12.0	10.2	9.89
Red blood cell count, per cu. mm.	4,080,000	4,100,000	4,600,000	5,240,000	3,650,000	3,760,000
White blood cell count, per cu. mm.	12,400	17,500	15,800	10,600	12,900	10,400
Polymorphonuclear cells, %	61	......	......	......	......	......
Lymphocytes, %	33	......	......	......	......	......
Monocytes, %	3	......	......	......	......	......
Nonprotein nitrogen, mg. per 100 cc.	31	......	......	......	......	......
Erythrocyte sedimentation rate, mm. per hr.	20	......	......	......	......	......
Glucose tolerance (fasting), mg. per 100 cc.	62	......	......	......	81.7	......
½ hr.	104	......	......	......	139.2	......
1	117	......	......	......	157.5	......
2	90	......	......	......	95.0	......
3	102	......	......	......	86.6	......
Epinephrine (fasting), mg. per 100 cc.	82	......	......	......	81.7	......
15 min.	110	......	......	......	123.2	......
30	102	......	......	......	140.8	......
60	90	......	......	......	130.0	......
Blood cholesterol, mg. per 100 cc.	275	480	350	......	216.6	416
Liver cholesterol, mg. per 100 cc.	86.6	......	......	......	......	......
Cholesterol esters, mg. per 100 cc.	192.9	......	......	......	......	273
Direct bilirubin (Van den Bergh), mg. per 100 cc.	0.24	0.15	0.15	......	......	0.01
Indirect bilirubin (Van den Bergh), mg. per 100 cc.	0.34	0.7	0.25	......	......	0.84
Total bilirubin (Van den Bergh), mg. per 100 cc.	0.58	0.85	0.4	......	......	0.85
Alkaline phosphatase (Bodansky), units per 100 cc.	5.5	8.3	......	......	......	......
Alkaline phosphatase (King-Armstrong), units per 100 cc.	10.1	15	......	......	15.1	......
Total protein, gm. per 100 cc.	8.5	7.5	......	......	9.7	......
Albumin	4.8	5.3	......	......	5.2	......
Globulin	3.7	2.2	......	......	4.5	......
Ratio	1.3:1	2.4:1	......	......	1.2:1	......
Prothrombin time, sec.	13.9	......	......	......	11.3	......
Control	12.6	......	......	......	12.8	......
Cephalin flocculation test	Trace	2+	Trace	......	1+	......
Urine calcium level (Sulkowitch), gm. per 24 hr.	......	2+	1+	......	......	
Blood calcium level, mg. per 100 cc.	......	10	......	......	10.9	......
Blood phosphorus level, mg. per 100 cc.	......	3.5	......	......	......	......
Icteric index	......	18	......	......	......	......
Nitrogen output, gm. (intake, 7.3 gm.)	......	5.96, 6.6, 6.8	......	......		......
Sulfobromophthalein retention, mg. per kg. body weight	......	......	......	......		7.4

Physical examination revealed the boy to be in remarkably good health, weighing 34 lb. (15.4 kg.). He did not seem acutely ill. The abdomen was greatly enlarged, with engorgement of veins of upper abdomen and chest. The liver was 13 cm. below the costal margin in the nipple line on the right. The left lobe of the liver was 10 cm. below the costal margin at the same point. The organ was hard, nodular, and nontender. The spleen was 3 cm. below the costal margin. There was evidence of moderate ascites. X-ray studies revealed complete healing of fractures with no evidence of osteoporosis (fig. 2*D*). Laboratory data as shown in table 1 revealed little change.

A liver biopsy revealed some distortion of liver architecture due partially to fatty metamorphosis but also to accumulation of large mononuclear cells with extensive foamy, or granular

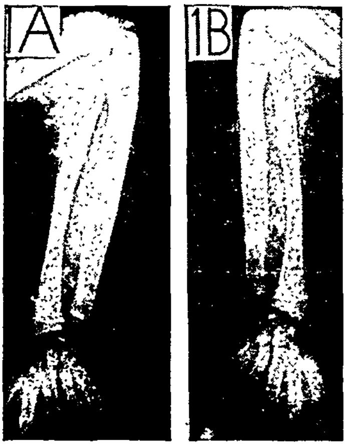
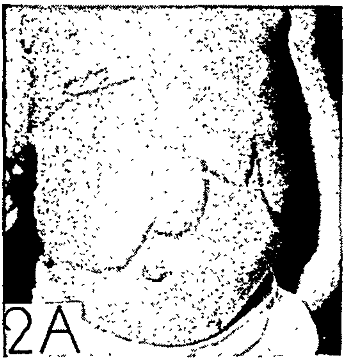


Fig. 1.—Osteoporosis in a boy, aged 5, with biliary atresia. *A*, right arm. *B*, left arm.



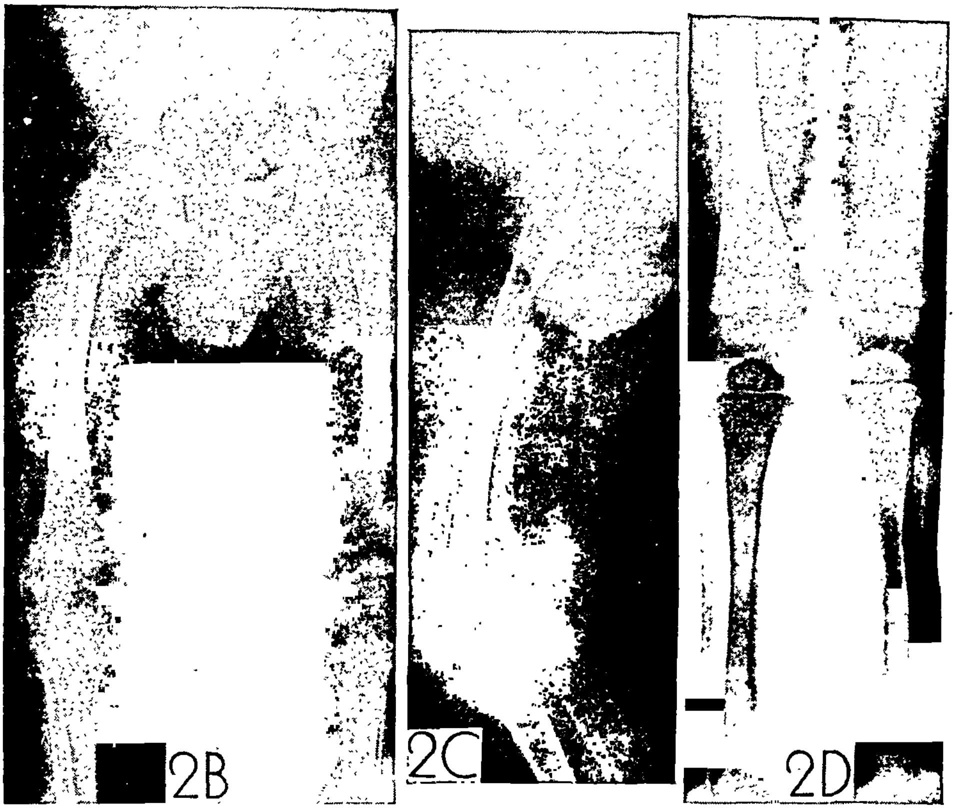
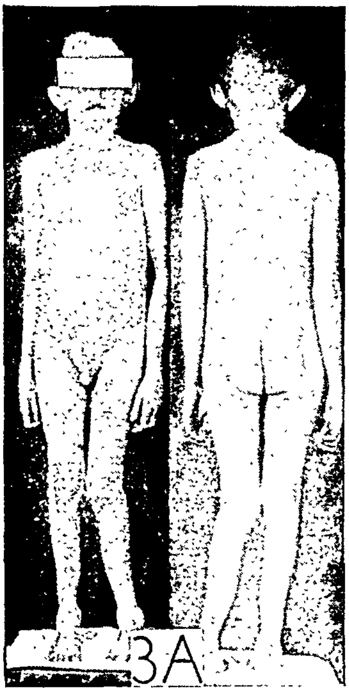
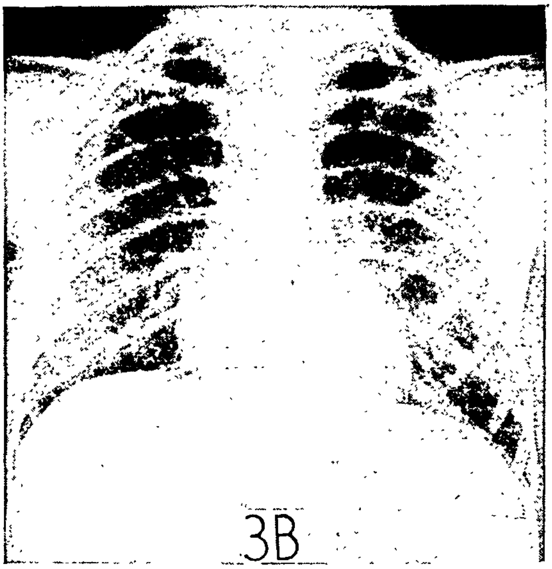


Fig. 2.—Case 1. *A*, photograph made on first admission to hospital, showing extent of liver enlargement. Roentgenograms of *B*, legs, showing extensive osteoporosis with fractures; *C*, femur, tibia, and fibula, showing extensive osteoporosis; and *D*, healing of fractures with no evidence of osteoporosis.





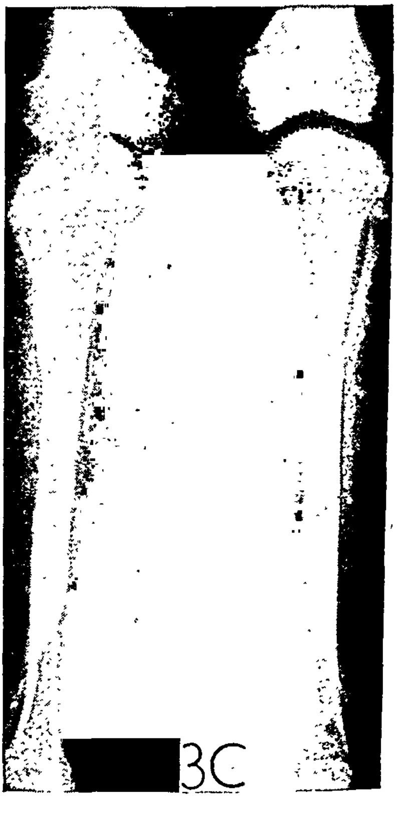


Fig. 3.—Case 2. *A*, photograph of patient on first admission to hospital. Roentgenograms of *B*, chest, revealing osteoporosis of ribs and clavicles, and *C*, lower extremities, showing osteoporosis and bizarre S-shaped deformity of fibulas.

cytoplasm. The nuclei of the cells were small, and the cytoplasm was pale, giving the appearance of finely dispersed lipid granules. These are characteristic of Gaucher's cells. Other areas show clear-cut carcinoma consistent with hepatocellular origin. One or two areas show slight bile formation by the cells. Mitotic figures are frequent, and mitoses are highly atypical. The diagnosis was hepaticellular carcinoma and possible lipid histiocytosis of kerasin type (Gaucher's disease). During his last stay at the hospital there was a steady downhill course. The temperature was septic in character, reaching 103 to 104 F (39.4 to 40 C) each day. He was discharged from the hospital Nov. 10, 1951, with a hopeless prognosis. He died Dec. 3, 1951. Autopsy was performed. The immediate cause of death was hemoperitoneum due to rupture of soft hemorrhagic metastatic mass in omentum. The liver was huge, weighing 2,030 gm. It was lobulated and nodular. Cells varied from normal cord cells to a variety of pleomorphic types. There was a tendency for the more normal cells to accumulate fat. The diagnosis was primary hepatocellular carcinoma with some evidence of cirrhosis. There were metastases in the sternum, lungs, pleura, diaphragm, mediastinum, omentum, and retroperitoneal lymph glands.

Certain features of this child's illness are of uncommon interest. The sequence of events suggest that the original etiological factor was an infectious hepatitis resulting in a cirrhosis of a marked degree. During this period there was an extensive process of decalcification that probably began as early as March, 1950, at the time of the first fracture, and reached its climax during June and July, 1950, when there were three additional pathological fractures involving the humerus, tibia, and right femoral head. X-ray studies at this time revealed extensive osteoporosis of all long bones of the body. During this period of greatest decalcification there was a gradual reduction in the size of the liver. Since liver function tests throughout showed practically no evidence of dysfunction, there were no laboratory data to confirm improvement.

In May, 1951, he was doing well, liver was down only 5 cm. below the costal margin. He was walking well and showed no clinical evidence of decalcification of the skeleton. In September, 1951, he began failing rapidly. The liver was found to be 13 cm. below the costal margin in October, 1951, when he was readmitted to the hospital for study. Thus, it had increased 8 cm. since our last examination in May, 1951. This extremely rapid growth indicating the onset of malignancy in what was thought to be cirrhosis secondary to infection, was not accompanied by further evidence of osteoporosis. Indeed, at the time of the second biopsy, which revealed evidence of carcinoma, calcification was thought to be normal with complete healing of all fractures. Evidently some disturbance of calcium metabolism occurred during the period of cirrhosis, which did not exist when rapid destruction of the liver by malignancy was taking place. Our laboratory investigations failed to reveal the basic disturbance. There was no evidence of failure of bile to reach the intestinal tract, which might have prevented vitamin D, calcium, and phosphorus absorption. However, at the height of the decalcification process, blood phosphorus level was low and alkaline phosphatase was at the upper limit of normal.

Case 2.—A white male was born on April 6, 1941. Little was known of his history up to the age of 9 months, when he was adopted from a British home and brought to live in Alabama. His development had been entirely normal. One item in the feeding history might be significant. The child had received excessive amounts of vitamin A and D. For many years the mother had administered one teaspoon of percomorphum each day. In February, 1948, there was a history of gross hematuria. An intravenous urogram failed to reveal the source of bleeding. The boy was admitted to Egleston Hospital on May 9, 1949, at the age of 8 years. The chief complaint was splenomegaly, which had been first noticed in September, 1947.

The boy was poorly nourished; his height was 47.5 in. (120.65 cm.); his weight was 48 lb. (21.8 gm.). The posture was striking; there was a marked lordosis with a protuberant abdomen. Genu valgum was present to considerable degree (fig. 3*A*). The scleras were slightly icteric; the lips were dusky, suggesting minimal cyanosis. There were several spider telangiectasias on trunk, shoulder, and arms. The head was large, measuring 21.75 in. (55.25 cm.) in circumference. Dental age was delayed. The abdomen was prominent. The spleen could be felt 7 cm. below the costal margin; the liver was palpated 1 cm. down in the nipple line on the right. The laboratory data are summarized in table 2. These observations extend over a 15 month period. As can be seen, the white blood cell counts were essentially leukopenic with a preponderance of neutrophils, except in the period immediately following splenectomy in February, 1950. The reticulocyte counts were generally elevated and the platelet counts low; the red blood cell count and hemoglobin level estimates gradually rose during the period of observation as cyanosis increased in intensity. Blood phosphorus level was low on two occasions, with calcium level normal. Liver function tests revealed elevated cholesterol and alkaline phosphatase values with positive cephalin flocculation tests. Serum protein levels were consistently low. Prothrombin time was prolonged. Pigment studies on the blood indicated mild obstructive jaundice.

A study of the bone marrow showed erythroid hyperplasia. A diagnosis of hemolytic anemia was entertained by the hematologist; however, with negative Coombs' test, normal fragility of red blood cells and a direct bilirubin (van den Bergh) reaction, the final opinion favored primary liver disease, most likely cirrhosis with congestive splenomegaly, although a punch biopsy of the liver revealed no pathology at this time. The x-ray studies of skull, long bones, and thoracic cage were striking (fig. 3). The skull was large with sutures slightly separated. The sella was oval and flat. All bones of the skull were thin. The sternum, ribs, and clavicles were narrow and band-like, exhibiting marked decalcification. Diaphysis of long bones showed increase in spongiosa. The fibulas were increased in length, assuming a bizarre S-shaped appearance since their proximal and distal ends were firmly attached to the tibias. The epiphysial plates of vertebrae also showed evidence of decalcification, as did the pelvis. After two weeks of study, the boy was discharged home to return later for reevaluation.

In July, 1949, while at home, the child suffered an acute pulmonary infection accompanied by cardiac failure. The story of this complication focused our attention on the cardiovascular system when the patient was readmitted in October, 1949. At this time, cyanosis was definite. For the first time, a soft, apical systolic murmur was heard. The cardiogram showed evidence of ventricular hypertrophy on the right side with strain. The spleen had increased from 7 to 11 cm. below the costal margin, and the liver was now felt 4 cm. down in the right nipple line. The esophagram failed to show evidence of varices. Splenectomy was thought necessary but was postponed in the hope that the general condition could be improved. The third admission occurred in February, 1950. Cyanosis was minimal and jaundice definite. Clubbing of fingers and toes was noted. The spleen was 14.5 cm. and the liver 6 cm. below the costal margin. Splenectomy and liver biopsy were done on Feb. 9, 1950. There were dense adhesions between spleen, diaphragm, and stomach. The liver had the typical hobnail appearance of cirrhosis. Histological studies revealed extensive cirrhosis of the liver that was thought to be secondary to infectious hepatitis. Sections of the spleen revealed congestion and fibrosis. Recovery from operation was stormy but finally satisfactory. The orthopedic condition became worse, requiring braces to facilitate standing and walking. The final chapter in this story occurred at his home in February, 1951, when the child suddenly died from massive hemorrhage, presumably due to esophageal varices. The total length of illness was about three and a half years.

Several factors must be considered in explaining the process of decalcification in this case. The possibility of a congenital disease of the skeletal system such as fragilitas ossium is not ruled out. Indeed the slender, fragile appearance of the long bones observed in this patient is quite similar to the pathology noted in that disease. The history of excessive amounts of vitamin D, having been administered over a long period of time suggest vitamin D toxicosis as an etiological factor. However, this hardly seems tenable, since the toxic effects of vitamin D are not manifest unless the intake is above 50,000 units daily. This patient was probably receiving less than 15,000 units daily. In view of the elevated basal metabolic reading, hyperthyroidism might be considered as the cause of decalcification. Unfortunately a protein-bound iodine estimation was not done; however, the high blood cholesterol is against such a diagnosis, and there are no other physical or laboratory evidences to support such an opinion. Although such extensive osteoporosis resulting from liver disease is certainly uncommon, still such a theory as to etiology must be entertained in this case.

TABLE 2.—*Laboratory Findings in Patient in Case 2*

Date	Serum Protein, Gm. per 100 Cc. Albumin	Globulin	Total	Glucose Tolerance, Mg. per 100 Cc. Test	½	1	2	3	Van den Bergh, Mg. per 100 Cc. Total	Direct	Icteric Index	Prothrombin Time, %	Fragility Test Patient Began	Patient Complete	Control Began	Control Complete	Sedimentation Rate, Mm. per Hr.	Urine Urobilin	Excretion Stool Urobilinogen, Mg. per 24 Hr.	Sulfobromophthalein Retention, %
5-10-49	4.5	2.9	7.4	67	158	160	150	110	...	.....	29	..	..	..	..	..	..	Pos.	....	..
5-12-49	...	...	...	..	...	...	...	...	...	.....	..	..	44	36	46	38	..	.....	....	..
5-13-49	...	...	...	..	...	...	...	...	...	Pos.	27	..	..	..	..	..	23	.....	....	..
5-16-49	...	...	...	..	...	...	...	...	2.4	Pos.	..	30	..	..	..	..	..	.....	82.6	..
5-20-49	...	...	...	..	...	...	...	...	...	.....	..	40	..	..	..	..	..	.....	....	18 (45 min.)
10-11-49	...	...	...	..	...	...	...	...	...	Pos.	19	..	..	..	..	..	10	.....	....	..
10-12-49	...	...	...	..	...	...	...	...	...	.....	..	..	44	32	46	34	..	.....	....	..
2- 2-50	...	...	...	..	...	...	...	...	...	Pos.	16	78	..	..	..	..	16	Pos.	....	..
2- 4-50	5.1	1.9	7.0	..	...	...	...	...	...	.....	..	..	44	31	46	38	..	.....	....	..
8- 9-50	...	...	...	..	...	...	...	...	...	.....	..	89	..	..	..	..	2	.....	....	..
8-19-50	3.6	3.0	6.6	..	...	...	...	...	...	.....	..	..	..	..	..	..	..	.....	....	..

Date	Hemoglobin Level, Gm. per 100 Cc.	Red Blood Cell Count, per Cu. Mm.	White Blood Cell Count, per Cu. Mm.	Neutrophils, %	Lymphocytes, %	Monocytes, %	Eosinophils, %	Reticulocytes, % per Cu. Mm.	Platelets, per Cu. Mm.	Blood Calcium Level, Mg. per 100 Cc.	Phosphorus Level, Mg. per 100 Cc.	Cholesterol, Mg. per 100 Cc. Blood	Liver	Ester	Nonprotein Nitrogen, Mg. per 100 Cc.	Alkaline Phosphatase (Bodansky), Units per 100 Cc.	Cephalin Flocculation Test	Coombs' Test	Basal Metabolism Rate	Methemoglobin
5- 9-49	12	4,180,000	4,350	60	38	..	2	...	....	...	...	.....	.....	.....	...	.....	...	.....	....	.....
5-10-49	....	....	......	..	..	..	..	4.2	....	9.7	3.3	500	.....	.....	34	.....	...	.....	....	.....
5-16-49	....	....	......	..	..	..	..	...	....	...	...	.....	.....	.....	...	.....	...	Neg.	....	.....
5-19-49	12.5	4,441,000	5,950	..	..	..	..	2.9	326,300	...	...	400	.....	.....	...	21.27	2+	.....	....	.....
5-20-49	....	....	......	..	..	..	..	...	....	...	...	.....	.....	.....	...	.....	...	.....	+37	.....
6-23-49	13.5	4,700,000	9,700	..	..	..	..	...	....	...	...	326.3	107.1	219 2	...	.....	...	.....	....	.....
10-11-49	14	4,940,000	6,300	64	32	2	2	1.3	70,000	...	...	.....	.....	.....	28	.....	...	.....	....	.....
10-12-49	....	....	......	..	..	..	..	...	65,000	...	...	700	.....	.....	...	.....	...	.....	....	.....
10-13-49	....	....	......	..	..	..	..	...	....	...	...	.....	.....	.....	...	.....	+	.....	....	.....
2- 2-50	16	5,280,000	5,750	69	25	..	6	2.7	100,000	...	...	.....	.....	.....	31	.....	...	.....	....	.....
2- 3-50	....	....	......	..	..	..	..	...	....	...	...	580	.....	.....	...	.....	...	.....	....	.....
2- 4-50	....	....	......	..	..	..	..	...	....	...	...	.....	.....	.....	...	.....	...	.....	....	Neg.
2- 6-50	14.5	4,800,000	5,000	66	28	1	5	...	70,000	...	...	.....	.....	.....	...	.....	+	.....	....	.....
2-10-50	14.5	5,100,000	18,700	83	17	..	..	...	80,000	...	...	.....	.....	.....	...	.....	...	.....	....	.....
2-13-50	14	4,650,000	17,500	64	34	..	2	...	150,000	...	...	.....	.....	.....	...	.....	...	.....	....	.....
8- 8-50	17.6	5,080,000	6,250	60	37	2	1	0.7	150,000	9.0	3.8	520	.....	.....	...	.....	...	.....	....	.....
8-11-50	....	....	......	..	..	..	..	...	....	...	...	.....	.....	.....	...	14.9	2+	.....	....	.....
8-19-50	....	....	......	..	..	..	..	...	....	...	...	.....	.....	.....	23.8	.....	...	.....	....	.....

SUMMARY

Of two cases of extensive osteoporosis accompanying fatal liver disease, in one instance the process of decalcification occurred in a child whose bone structure was normal at the beginning of the illness. While under observation for cirrhosis of the liver, the patient developed extensive osteoporosis. Apparently no basic change occurred in bone matrix, since subsequent decalcification took place resulting in normal bone. One year later the pathology in the liver became carcinomatous. Death rapidly ensued without recurrence of osteoporosis. In the second child, the pathology in the bones was evidently of long standing, resulting not only in decalcification but in some fundamental change in bone matrix. Throughout the period of observation, the long bones appeared as fragile, narrow, band-like shadows. Neither therapy nor the course of the disease appeared to change the basic skeletal pathology. The liver's role in the absorption of calcium, phosphorus, and vitamin D apparently was not impaired in these patients. The cause of low phosphorus levels in both patients is not clear. No evidence of renal or endocrine pathology could be established, which might have played some part in the pathology. Although the patient in case 2 showed minimal jaundice, he exhibited no tendency toward hypocalcemia, as was reported by Buchbinder and Kern. The concept of Whipple, Hansen, and McQuarrie that the liver elaborates some unknown substance that promotes calcification or prevents decalcification seems most likely. Such a concept, however, leaves much to be explained. The occurrence of osteoporosis in the patient with liver disease is the exception, not the rule. The patient in case 1 presented an even more puzzling problem. Decalcification occurred during a period in which the so-called cirrhotic liver shrank from 13 to 8 cm. below the costal margin in spite of intensive therapy consisting of high vitamin intake, iron, lipotropic substances, and parenterally administered liver extract and vitamin A. Subsequently, complete healing of bone took place as the liver diminished in size to only 5 cm. below the costal margin and with no change in therapy. The final invasion of the liver by carcinomatous cells resulted in no recurrence of osteoporosis. Such a sequence of events suggests that infection and subsequent cirrhosis were of prime importance in producing decalcification and that malignancy per se was not to be considered as an etiological factor.

24 14th St., N. E. (5) (Dr. Roberts).

ASSOCIATION OF IRRADIATION WITH CANCER OF THE THYROID IN CHILDREN AND ADOLESCENTS

Dwight E. Clark, M.D., Chicago

The possibility that irradiation might be an etiological factor in carcinoma of the thyroid in children and adolescents was suggested by Duffy and Fitzgerald,[1] who found that 10 of 28 patients, 18 years of age or younger, seen at the Memorial Hospital had been subjected to irradiation to the thymus gland some time between the 4th and 16th month of life. Simpson, Hempelmann, and Fuller [2] studied the frequency of neoplasms in 1,400 of 1,722 children who had received x-ray therapy to the thymic area between 1926 and 1951 and found that the number of cases of thyroid cancer was markedly higher in the treated group than in either the untreated siblings or the general population. As short courses of low voltage x-rays have been widely used in children for benign conditions about the head, neck, and upper thorax other than thymic enlargement, a search of the literature was made to ascertain whether anyone had correlated such treatments with the subsequent development of carcinoma of the thyroid, but no references could be found. Because of this, I made a careful survey in regard to any previous irradiation about the neck in all cases of carcinoma of the thyroid in my patients aged 15 years or under.

RESULTS

Thirteen cases of carcinoma of the thyroid in children and adolescents have been seen, all within the past six years. Ten persons have been treated and are being followed; three seen in consultation were treated elsewhere. All of the patients in the series had been subjected to previous irradiation: three to the upper chest for an enlarged thymus; three to the neck for cervical adenitis; five to the head and neck for enlarged tonsils and adenoids; one to the face and anterior chest for sinusitis and peribronchitis; and one to the anterior upper chest for pertussis (table 1). Two cases not included in the series are known by correspondence. One was in a girl, aged 14, who received x-ray treatments in early childhood to the upper chest for a chronic cough, postpneumonic. The other occurred in a girl, aged 7, subjected to irradiation to the thymic area in infancy. Of the 13 cases, 12 were observed in girls and one in a boy. The predominance of the condition in girls is in accordance with the experience of others. The patients in this series ranged in age from 2 months to 6 years at the time of irradiation. The age at the time of histological diagnosis of tumor varied from approximately 4 to 15 years. The interval from the time of irradiation to the date of diagnosis of the neoplasm was approximately 3 to 10 years, with an average of 6.9 years. The development of all of the children in the series had been normal, and none of them had a history of any previous thyroid disorder. All of the individuals are living, well, and clinically free of carcinoma except one who still has x-ray evidence of pulmonary metastasis.

The total dose (in air) ranged from 200 r to 725 r in 11 of the cases. The size of the portals was quite variable, ranging from 3 by 3 cm. to 10 by 15 cm. In the case in which the patient received irradiation for pertussis, the size was designated only as large. The portal size in four of the cases could not be obtained. The doses are comparable to those found by Simpson, Hempelmann, and Fuller.[2] In their studies the total dose (in air) ranged from 50 r to 1,500 r, with the vast majority being less than 600 r. All of their individuals who subsequently developed tumors of the thyroid were in the group that received more than 200 r. Of 1,722 children, 604 (35%) received under 200 r; none of those traced to date had developed any known thyroid gland tumors.

PATHOLOGY AND EXTENT OF SPREAD

None of the carcinomas in the series showed an entirely uniform histological pattern. In four, the morphology was predominantly papillary; an admixture of papillary and alveolar carcinoma was observed in three cases; and in six of the cases the histological features were principally alveolar or follicular. The known extent of the carcinoma in the 13 cases in the series is summarized in table 2. In only one case was the carcinoma limited to the thyroid gland. Unilateral involvement of the deep jugular lymphatic system was found in five cases and bilateral involvement in six cases. In one case, two pretracheal nodes were involved, as was the trachea, by direct extension from the primary focus in the thyroid. A metastasis to the esophagus was found in one case.

From the Department of Surgery and the Argonne Cancer Research Hospital of the University of Chicago.

[1] Duffy, B. J., Jr., and Fitzgerald, P. J.: Thyroid Cancer in Childhood and Adolescence: Report on 28 Cases, Cancer 3: 1018-1032, 1950.

[2] Simpson, C. L.; Hempelmann, L. H., and Fuller, L. M.: Neoplasia in Children Treated with X-rays in Infancy for Thymic Enlargement, Radiology 64: 840-845 (June) 1955.

In four of the cases changes in the lungs, demonstrated by chest films, were compatible with metastases. In three of these the lesions were of a diffuse miliary type involving principally the basilar portions of the lungs; and in all three, the lesions disappeared after radioactive iodine therapy as was seen by x-ray examination. This high incidence of metastases is similar to the experiences of others in carcinoma of the thyroid in this age range. In all cases the condition was overt when the patients were first seen.

COMMENT

In all of the cases of carcinoma of the thyroid in children and adolescents that are known personally by me, the patients had been subjected to prior irradiation to areas where the thyroid gland or portions of it could have been included in the field of irradiation. The observation lends support to the idea that an association may exist between irradiation given in infancy and early childhood and the subsequent development of cancer of the thyroid. During recent years considerable interest has developed concerning the frequency of carcinoma of the thyroid in children and adolescents. Although it is still a relatively uncommon condition, the number of cases diagnosed is becoming more frequent. Winship,[3] in his excellent review of the subject, found that from 1900 through 1930, only 8 cases of carcinoma of the thyroid in individuals under 15 years of age were reported in the literature; from 1931 to 1940, 34 cases were recorded; and during the period from 1941 to 1950, 50 cases were reported. Winship [3] added 4 cases of his own and reported 95 hitherto unpublished cases from a survey of children's hospitals and large approved general hospitals, bringing the total reported to 191.

TABLE 2.—*Known Extent of the Carcinoma*

Extent	No. Cases
Limited to thyroid gland	1
Unilateral involvement of lymphatics of neck	3
Unilateral involvement of lymphatics of neck and both lungs	2
Involvement of delphian nodes and trachea	1
Bilateral involvement of lymphatics of neck	3
Bilateral involvement of lymphatics of neck and both lungs	2
Bilateral involvement of lymphatics of neck and esophagus	1

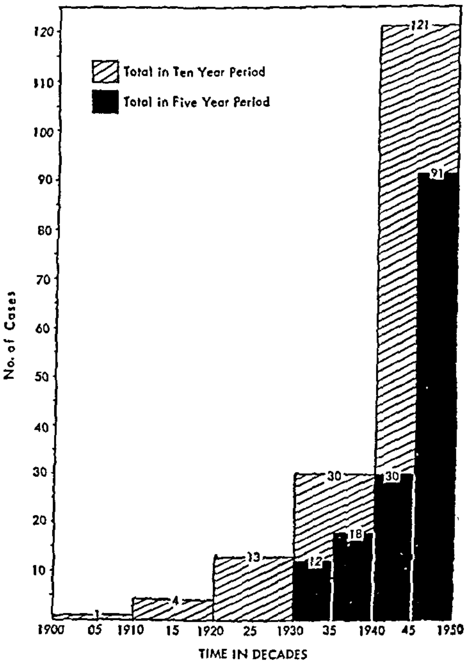
From follow-up information given by Winship [3] for the collected cases and careful study of follow-up data and case histories of the previously published cases, it was possible to ascertain the approximate time of diagnosis of 169 of the 191 cases. As shown in the figure, 18 cases were diagnosed prior to 1930; from 1930 to 1940, 30 cases were diagnosed; and during the period from 1940 to 1950, 121 cases were diagnosed. The data show that carcinoma of the thyroid in children is being diagnosed more frequently. The recent increase is so large (see figure) that, in the absence of any great improvement in the methods available for diagnosis or in the availability of diagnostic methods to the population during this time, is must represent a true increase of carcinoma. Many cases have not been recorded, and statistics have not been corrected for population trends.

The increasing incidence of carcinoma of the thyroid in children and adolescents seems to correlate with the greater use of x-ray for benign conditions about the head,

TABLE 1.—*Cases of Carcinoma of the Thyroid in Children and Adolescents Who Had Received Irradiation* *

Sex	Age Received Irradiation	Age Carcinoma Diagnosed, Yr.	Time from Irradiation to Diagnosis, Yr.	Location of Irradiation	No. Treatments	Total Dose, r	Portals	Reason for Irradiation
F	2 mo.	7	7	Chest	1	210	5 × 5	Enlarged thymus
F	3 mo.	7	7	Chest	4	400	......	Enlarged thymus
F	8 mo.	8	7	Anterior upper chest	2	200	......	Enlarged thymus
F	5 yr.	11	6	Neck	4	200	10 × 10	Cervical adenitis
F	4 yr.	12	8	Right upper neck	3	300	3 × 3	Cervical adenitis
F	6 yr.	15	9	Neck	3	...	......	Cervical adenitis
F	10 mo.	4	3	Head and neck	3	600	8 × 10	Enlarged tonsils and adenoids
F	3 yr.	8	5	Head and neck	3	...	......	Enlarged tonsils
F	3 yr.	10	7	Head and neck	3	624	6 × 8	Enlarged tonsils
M	4 and 6 yr.	14	8 or 10	Right and left nasopharynx	6	725	8 × 10	Enlarged tonsils
F	4 yr.	10	6	Tonsillar area	4	300-400	8 × 10	Enlarged tonsils and adenoids
F	3 yr.	10	7	Face and anterior chest	4	550	10 × 15	Sinusitis and peribronchitis
F	4 yr.	14	10	Anterior upper chest	4	300	Large	Pertussis

* Two cases not included in the series are known by correspondence. One was in a girl 14 years of age who received x-ray treatments in early childhood to the upper chest for a chronic cough, postpneumonic. The other was in a girl 7 years of age who was subjected to irradiation to the thymic area in infancy.



Incidence, in decades, of 169 of the 191 cases collected by Winship [3] of carcinoma of the thyroid in children under 15 years of age. The distribution is based on the approximate time of diagnosis.

---

[3] Winship, T.: Symposium on Thyroid Tumors: Carcinoma of the Thyroid in Children, Tr. Am. Goiter A. (1951), pp. 364-389, 1952.

neck, and upper thorax. The use of irradiation for the treatment of enlarged thymus in infancy was first reported by Friedlander[4] in 1907. During ensuing years there was an increasing number of such cases treated, and x-ray therapy was extended with increasing frequency to the treatment of other benign conditions about the neck. From 1930 to 1945 irradiation in infancy and early childhood was commonplace, not only for enlarged thymus glands[2] but for enlarged tonsils and adenoids, cervical adenitis, and pulmonary conditions. Although prior x-ray treatment cannot be definitely incriminated, the association is striking, and the observation strongly suggests that the widespread use of x-ray about the neck in early life might be an important factor in the increasing number of cases of carcinoma of the thyroid diagnosed in late childhood and adolescence. It is hoped that this report will stimulate further investigation of this possibility.

SUMMARY

In 15 cases of carcinoma of the thyroid in children 15 years of age and younger, all the patients had prior x-ray therapy in infancy and early childhood for benign conditions about the head, neck, and thorax. The observation lends strong support to the idea that an association exists between irradiation and the subsequent development of cancer of the thyroid in late childhood and adolescence. The interval from the time of irradiation to the date of diagnosis of the carcinoma averaged 6.9 years. The total dose (in air) received ranged from 200 r to 725 r. None of the patients in these cases had a history of any previous thyroid disorder. All of the individuals are living and clinically free of carcinoma except one. The statistics presented show that, during the period from 1900 to 1950, cancer of the thyroid in individuals under 15 years of age was being diagnosed with increasing frequency. This increasing incidence correlates with the increased use of x-ray in the treatment of enlarged thymus, enlarged tonsils and adenoids, cervical adenitis, and benign pulmonary conditions. The correlation suggests that prior irradiation about the neck in early life might be an etiological factor in the development of carcinoma of the thyroid in late childhood and adolescence.

950 E. 59th St. (37).

---

[4] Friedlander, A.: Status Lymphaticus and Enlargement of the Thymus: With Report of a Case Successfully Treated by the X-Ray, Arch. Pediat. **24**: 490-501, 1907.

THERAPEUTIC ASPECTS OF A WATER-BORNE OUTBREAK OF AMEBIASIS IN SOUTH BEND, IND.

Robert W. Sappenfield, M.D., New Orleans, F. R. N. Carter, M.D., Carl Culbertson, M.D., South Bend, Ind.
Marion M. Brooke, Sc.D., Fred M. Payne, M.D., Atlanta, Ga.
and
William W. Frye, M.D., Ph.D., New Orleans

An outbreak of amebiasis occurred in South Bend, Ind., during 1953.[1] This was the third reported outbreak of this disease involving a civilian population within the United States.[2] In all three of these outbreaks, which occurred in the Great Lakes region, investigations revealed a contaminated water supply to be the most probable source of infection. The South Bend epidemic was restricted to the employees of a woodworking plant. A random sample of employees revealed 51% of the group sampled to be infected with Endamoeba histolytica. Approximately 800 of the 1,500 employees were presumed to be infected, on the basis of the sample taken. The plant's source of water was changed from a private well to the municipal system to avoid the possibility of further spread if the water supply proved to be the source of infection. After preliminary studies by representatives of the local medical society, state and local health authorities, and the United States Public Health Service, in cooperation with labor and management, a program was organized to examine all employees involved and to treat those found to be infected with E. histolytica.

MATERIALS AND METHODS

Stool specimens were obtained from all employees and examined for E. histolytica and other intestinal parasites. Examinations were repeated until either a positive diagnosis for E. histolytica was obtained or until four specimens with negative results had been submitted. The specimens were collected at one week intervals. Specimens were collected at the plant and then delivered to the laboratory. Preparation of the specimen for examination was completed one to one and one-half hours after passage of the stool. Diarrheal stools were delivered as quickly as possible instead of waiting for the routine service. The Ritchie formaldehyde (Formalin)–ether concentration technique[3] was employed routinely. Saline and iodine preparations of the concentrate were examined on all specimens. The first diagnostic specimens were examined by an iron-

---

Assistant Professor in the departments of public health and preventive medicine and pediatrics, Louisiana State University School of Medicine (Dr. Sappenfield); City Health Officer (Dr. Carter); Acting Director, South Bend Medical Foundation (Dr. Culbertson); Senior Scientist (Dr. Brooke) and Senior Assistant Surgeon (Dr. Payne), Communicable Disease Center, Public Health Service; and Professor of Tropical Medicine and Dean, Louisiana State University School of Medicine (Dr. Frye).

The oxytetracycline used in this study was supplied as Terramycin by Chas. Pfizer & Company, Inc., Brooklyn, N. Y. The fumagillin was supplied as Fumidil by Abbott Laboratories, North Chicago, Ill.

[1] LeMaistre, C., and others: Studies of a Water-Borne Outbreak of Amebiasis in South Bend, Indiana, to be published.

[2] Hardy, A. V., and Spector, B. K.: The Occurrence of Infestations with E. Histolytica Associated with Water-Borne Epidemic Diseases, Pub. Health Rep. **50**: 323-334, 1935. Epidemic Amebic Dysentery: The Chicago Outbreak of 1933, Bulletin 166, U. S. Treasury Department, Public Health Service, National Institutes of Health, 1936, p. 187.

[3] Ritchie, L. S.: An Ether Sedimentation Technique for Routine Stool Examinations, Bull. U. S. Army M. Dept. **8**: 326, 1948.

In four of the cases changes in the lungs, demonstrated by chest films, were compatible with metastases. In three of these the lesions were of a diffuse miliary type involving principally the basilar portions of the lungs; and in all three, the lesions disappeared after radioactive iodine therapy as was seen by x-ray examination. This high incidence of metastases is similar to the experiences of others in carcinoma of the thyroid in this age range. In all cases the condition was overt when the patients were first seen.

COMMENT

In all of the cases of carcinoma of the thyroid in children and adolescents that are known personally by me, the patients had been subjected to prior irradiation to areas where the thyroid gland or portions of it could have been included in the field of irradiation. The observation lends support to the idea that an association may exist between irradiation given in infancy and early childhood and the subsequent development of cancer of the thyroid. During recent years considerable interest has developed concerning the frequency of carcinoma of the thyroid in children and adolescents. Although it is still a relatively uncommon condition, the number of cases diagnosed is becoming more frequent. Winship,[3] in his excellent review of the subject, found that from 1900 through 1930, only 8 cases of carcinoma of the thyroid in individuals under 15 years of age were reported in the literature; from 1931 to 1940, 34 cases were recorded; and during the period from 1941 to 1950, 50 cases were reported. Winship[3] added 4 cases of his own and reported 95 hitherto unpublished cases from a survey of children's hospitals and large approved general hospitals, bringing the total reported to 191.

TABLE 1.—*Cases of Carcinoma of the Thyroid in Children and Adolescents Who Had Received Irradiation* *

Sex	Age Received Irradiation	Age Carcinoma Diagnosed, Yr.	Time from Irradiation to Diagnosis, Yr.	Location of Irradiation	No. Treatments	Total Dose, r	Portals	Reason for Irradiation
F	2 mo.	7	7	Chest	1	210	5 × 5	Enlarged thymus
F	3 mo.	7	7	Chest	4	400	......	Enlarged thymus
F	8 mo.	8	7	Anterior upper chest	2	200	......	Enlarged thymus
F	5 yr.	11	6	Neck	4	200	10 × 10	Cervical adenitis
F	4 yr.	12	8	Right upper neck	3	300	3 × 3	Cervical adenitis
F	6 yr.	15	9	Neck	3	...	......	Cervical adenitis
F	10 mo.	4	3	Head and neck	3	600	8 × 10	Enlarged tonsils and adenoids
F	3 yr.	8	5	Head and neck	3	...	......	Enlarged tonsils
F	3 yr.	10	7	Head and neck	3	624	6 × 8	Enlarged tonsils
M	4 and 6 yr.	14	8 or 10	Right and left nasopharynx	6	725	8 × 10	Enlarged tonsils
F	4 yr.	10	6	Tonsillar area	4	300-400	8 × 10	Enlarged tonsils and adenoids
F	3 yr.	10	7	Face and anterior chest	4	550	10 × 15	Sinusitis and peribronchitis
F	4 yr.	14	10	Anterior upper chest	4	300	Large	Pertussis

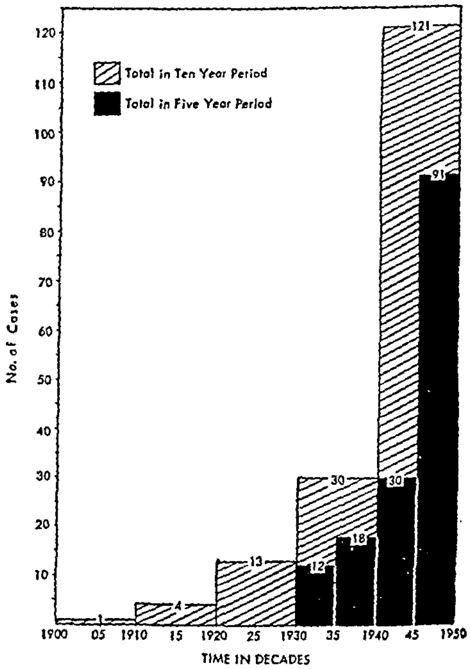
* Two cases not included in the series are known by correspondence. One was in a girl 14 years of age who received x-ray treatments in early childhood to the upper chest for a chronic cough, postpneumonic. The other was in a girl 7 years of age who was subjected to irradiation to the thymic area in infancy.

TABLE 2.—*Known Extent of the Carcinoma*

Extent	No. Cases
Limited to thyroid gland	1
Unilateral involvement of lymphatics of neck	3
Unilateral involvement of lymphatics of neck and both lungs	2
Involvement of delphian nodes and trachea	1
Bilateral involvement of lymphatics of neck	3
Bilateral involvement of lymphatics of neck and both lungs	2
Bilateral involvement of lymphatics of neck and esophagus	1

From follow-up information given by Winship[3] for the collected cases and careful study of follow-up data and case histories of the previously published cases, it was possible to ascertain the approximate time of diagnosis of 169 of the 191 cases. As shown in the figure, 18 cases were diagnosed prior to 1930; from 1930 to 1940, 30 cases were diagnosed; and during the period from 1940 to 1950, 121 cases were diagnosed. The data show that carcinoma of the thyroid in children is being diagnosed more frequently. The recent increase is so large (see figure) that, in the absence of any great improvement in the methods available for diagnosis or in the availability of diagnostic methods to the population during this time, is must represent a true increase of carcinoma. Many cases have not been recorded, and statistics have not been corrected for population trends.

The increasing incidence of carcinoma of the thyroid in children and adolescents seems to correlate with the greater use of x-ray for benign conditions about the head,



Incidence, in decades, of 169 of the 191 cases collected by Winship[3] of carcinoma of the thyroid in children under 15 years of age. The distribution is based on the approximate time of diagnosis.

---

3. Winship, T.: Symposium on Thyroid Tumors: Carcinoma of the Thyroid in Children, Tr. Am. Goiter A. (1951), pp. 364-389, 1952.

neck, and upper thorax. The use of irradiation for the treatment of enlarged thymus in infancy was first reported by Friedlander[4] in 1907. During ensuing years there was an increasing number of such cases treated, and x-ray therapy was extended with increasing frequency to the treatment of other benign conditions about the neck. From 1930 to 1945 irradiation in infancy and early childhood was commonplace, not only for enlarged thymus glands[2] but for enlarged tonsils and adenoids, cervical adenitis, and pulmonary conditions. Although prior x-ray treatment cannot be definitely incriminated, the association is striking, and the observation strongly suggests that the widespread use of x-ray about the neck in early life might be an important factor in the increasing number of cases of carcinoma of the thyroid diagnosed in late childhood and adolescence. It is hoped that this report will stimulate further investigation of this possibility.

SUMMARY

In 15 cases of carcinoma of the thyroid in children 15 years of age and younger, all the patients had prior x-ray therapy in infancy and early childhood for benign conditions about the head, neck, and thorax. The observation lends strong support to the idea that an association exists between irradiation and the subsequent development of cancer of the thyroid in late childhood and adolescence. The interval from the time of irradiation to the date of diagnosis of the carcinoma averaged 6.9 years. The total dose (in air) received ranged from 200 r to 725 r. None of the patients in these cases had a history of any previous thyroid disorder. All of the individuals are living and clinically free of carcinoma except one. The statistics presented show that, during the period from 1900 to 1950, cancer of the thyroid in individuals under 15 years of age was being diagnosed with increasing frequency. This increasing incidence correlates with the increased use of x-ray in the treatment of enlarged thymus, enlarged tonsils and adenoids, cervical adenitis, and benign pulmonary conditions. The correlation suggests that prior irradiation about the neck in early life might be an etiological factor in the development of carcinoma of the thyroid in late childhood and adolescence.

950 E. 59th St. (37).

---

4. Friedlander, A.: Status Lymphaticus and Enlargement of the Thymus: With Report of a Case Successfully Treated by the X-Ray, Arch. Pediat. 24: 490-501, 1907.

THERAPEUTIC ASPECTS OF A WATER-BORNE OUTBREAK OF AMEBIASIS IN SOUTH BEND, IND.

Robert W. Sappenfield, M.D., New Orleans, F. R. N. Carter, M.D., Carl Culbertson, M.D., South Bend, Ind.
Marion M. Brooke, Sc.D., Fred M. Payne, M.D., Atlanta, Ga.
and
William W. Frye, M.D., Ph.D., New Orleans

An outbreak of amebiasis occurred in South Bend, Ind., during 1953.[1] This was the third reported outbreak of this disease involving a civilian population within the United States.[2] In all three of these outbreaks, which occurred in the Great Lakes region, investigations revealed a contaminated water supply to be the most probable source of infection. The South Bend epidemic was restricted to the employees of a woodworking plant. A random sample of employees revealed 51% of the group sampled to be infected with Endamoeba histolytica. Approximately 800 of the 1,500 employees were presumed to be infected, on the basis of the sample taken. The plant's source of water was changed from a private well to the municipal system to avoid the possibility of further spread if the water supply proved to be the source of infection. After preliminary studies by representatives of the local medical society, state and local health authorities, and the United States Public Health Service, in cooperation with labor and management, a program was organized to examine all employees involved and to treat those found to be infected with E. histolytica.

MATERIALS AND METHODS

Stool specimens were obtained from all employees and examined for E. histolytica and other intestinal parasites. Examinations were repeated until either a positive diagnosis for E. histolytica was obtained or until four specimens with negative results had been submitted. The specimens were collected at one week intervals. Specimens were collected at the plant and then delivered to the laboratory. Preparation of the specimen for examination was completed one to one and one-half hours after passage of the stool. Diarrheal stools were delivered as quickly as possible instead of waiting for the routine service. The Ritchie formaldehyde (Formalin)-ether concentration technique[3] was employed routinely. Saline and iodine preparations of the concentrate were examined on all specimens. The first diagnostic specimens were examined by an iron-

---

Assistant Professor in the departments of public health and preventive medicine and pediatrics, Louisiana State University School of Medicine (Dr. Sappenfield); City Health Officer (Dr. Carter); Acting Director, South Bend Medical Foundation (Dr. Culbertson); Senior Scientist (Dr. Brooke) and Senior Assistant Surgeon (Dr. Payne), Communicable Disease Center, Public Health Service; and Professor of Tropical Medicine and Dean, Louisiana State University School of Medicine (Dr. Frye).

The oxytetracycline used in this study was supplied as Terramycin by Chas. Pfizer & Company, Inc., Brooklyn, N. Y. The fumagillin was supplied as Fumidil by Abbott Laboratories, North Chicago, Ill.

1. LeMaistre, C., and others: Studies of a Water-Borne Outbreak of Amebiasis in South Bend, Indiana, to be published.

2. Hardy, A. V., and Spector, B. K.: The Occurrence of Infestations with E. Histolytica Associated with Water-Borne Epidemic Diseases, Pub. Health Rep. 50: 323-334, 1935. Epidemic Amebic Dysentery: The Chicago Outbreak of 1933, Bulletin 166, U. S. Treasury Department, Public Health Service, National Institutes of Health, 1936, p. 187.

3. Ritchie, L. S.: An Ether Sedimentation Technique for Routine Stool Examinations, Bull. U. S. Army M. Dept. 8: 326, 1948.

hematoxylin technique.[4] This same technique was used on all specimens for which there was a questionable diagnosis. All unformed specimens were examined by direct saline preparation in addition to the methods described above. All specimens were examined by at least two parasitologists before a positive diagnosis of E. histolytica was accepted.

All individuals harboring E. histolytica were treated as soon as evidence of infection was found. Therapy was begun in one group after the results of each of the four stool examinations became known. Infected individuals were treated with fumagillin, 20 mg. twice daily for 10 days, or oxytetracycline, 1 gm. twice daily for 10 days. The type of treatment to be given to the individual was decided by alternately selecting patients as they arrived for their first day of therapy. A schedule was arranged so that one-half of the daily medication was taken in the morning in the presence of a nurse and the other half given to the patient to be taken just before leaving work. Two weeks after completion of treatment, each patient submitted the first of three weekly stool specimens for examination. If a specimen was found to be positive, no further specimens were submitted and the patient was recommended for retreatment. All patients found to have a positive stool after treatment were given the alternate drug. The results of this course of therapy were checked in the same manner as the original. Three to four months after this program was started, every worker submitted another stool specimen for examination. This defined the rate of infection in treated and untreated employees.

Table 1.—*Results of Diagnostic Program*

No. of plant employees	1,561
No. of employees interviewed	1,548
Employees contributing specimens for examination	1,542
Percentage of employees harboring Endamoeba histolytica	52.4

RESULTS AND REACTIONS

On July 1, 1953, the employees of the woodworking plant, plus those people who had recently retired or resigned, totaled 1,561. Of these, 1,548 individuals were interviewed and 1,542 participated in the diagnostic program. Stool examinations revealed that 808, or 52.4%, of the participants, harbored E. histolytica in their gastrointestinal tracts (table 1). By December, 805 had reported for treatment. Oxytetracycline was given to 405 and fumagillin to 400. After an analysis of the records, 714 employees had fulfilled one of the following criteria and were included in the evaluation study: 1. A positive stool examination after completion of treatment. 2. Four negative stool examinations over a three to four month period after completion of treatment. Of these 714 patients, 358 received oxytetracycline and 356 received fumagillin. After one course of therapy with oxytetracycline, 338, or 94.4%, of the individuals treated had four negative stool examinations over a four month period. Fumagillin gave similar results in 334, or 93.4%, of those treated. There were 42 patients who were still infected after the original treatment. Each of these was treated again, this time with the alternate drug. In 4 of the 20 patients whose stools remained positive after the original fumagillin therapy, they were still positive after treatment with oxytetracycline. In 2 of the 13 patients whose stools remained positive after the original oxytetracycline therapy, they were still positive after treatment with fumagillin. Patients having four negative stool examinations over a one and one-half to three month follow-up period after the second course of therapy were considered free from infection. In this therapeutic study no attempt was made to include an untreated control series. Table 2 shows the results of therapy.

Table 2.—*Results of Treatment Program for Amebiasis*

	1st Course			2nd Course					
		Post-Treatment Stool Examination			Post-Treatment Stool Examination			Total Negative	
	No. Treated	Negative	Positive	No. Treated	Negative	Positive	Total Treated	No.	%
Oxytetracycline	358	338	20	20 *	16	4	378	354	93.7
Fumagillin	356	334	22	13 †	11	2	369	345	93.5
Total	714	672	42	33	27	6	747	699	....

* Treated previously with fumagillin. The other 2 were followed by private physicians.
† Treated previously with oxytetracycline. The other 7 were followed by private physicians.

Evaluation of drug reactions is very difficult when a large number of persons are being treated at the same time. The number of subjective complaints can be influenced by the rumor of complaints among participants. Lack of close personal relationship between the participants and the treatment team may reduce the number of complaints recorded. During the study, individuals under treatment were encouraged to report any unusual signs or symptoms. The treatment program required daily contact between employees and medical personnel during the entire 10 day period of therapy. All complaints reported at these visits were recorded. During the first month after treatment, frequent contact with employees was necessary to obtain follow-up stool specimens. Each person was questioned about possible drug reactions on each occasion.

It must be noted that no control series was studied. No one was followed for complaints unless he or she was receiving medication. Although the number of record keepers was small, recording differences existed that cannot be eliminated. No analysis of complaints was made until after the treatment program was completed. Included in the final evaluation were 838 courses of therapy for which observation had been adequate. In

---

[4] Markey, R. L.; Culbertson, C. S., and Giordano, A. S.: Rapid Method for the Staining of Intestinal Parasites, Am. J. Clin. Path., Tech. Supp. 7: 2-3, 1943.

415 of these cases oxytetracycline was given; fumagillin was given in 423. Complaints were registered by 62.4% of those treated with oxytetracycline and by 65.8% of those treated with fumagillin. The complaints are listed in table 3.

Oxytetracycline.—Among patients receiving oxytetracycline, loose stools, abdominal cramping or gas pains, and nausea were the most common complaints during the 10 day treatment period. Although these complaints occurred at any time during the 10 day period, the usual onset was after the fourth day. Difficulty usually lasted 48 to 72 hours. Most of the complaints disappeared shortly after the treatment with oxytetracycline was completed. Diarrhea developed in 28 persons; 4 of these had mild diarrhea, 18 moderate, and 6 severe. In two of the six cases of severe diarrhea, the reaction occurred late in the course of therapy and ceased after three days of symptomatic treatment. In two others the diarrhea started early and, although very severe, ceased quickly when therapy was changed to fumagillin. In the remaining two, the difficulty occurred at the end of therapy and continued in spite of symptomatic treatment. These two patients were referred to their family physicians.

Anal itching was the most frequent complaint that had its onset after completion of the oxytetracycline treatment. There seems little doubt that more of this occurred than was recorded. Many patients admitted having a hesitancy to report this complaint to the nurses. Only after the itching became severe or prolonged did 30 individuals report the complaint for recording. The treatment recommended for anal itching was to keep the area clean and to apply a bland ointment to protect against moisture. Moisture intensified the itching. In most severe cases, an antifungal ointment was used with some success. Since no fungus cultures were taken, and since the number of people involved was small, no evaluation of this therapy could be made. Nine individuals complained of severe rectal burning at variable intervals during the first month of therapy. Five of these also noted the presence of red blood in their stools on several occasions. Although seven of these nine were referred to their family doctors for specific individualized treatment, some were still having difficulty two to four months after completion of their course of oxytetracycline. This was the most difficult problem encountered during this therapeutic study.

Fumagillin.—A wide variety of complaints was received from individuals who were given fumagillin. Loose stools, abdominal cramping or gas pains, nausea, headaches, and mild weakness occurred frequently, either separately or in variable combinations. These symptoms seemed to occur at any time during the 10 day treatment period. The occurrence of symptoms seemed to be related to the length of time elapsing between the last meal and the intake of fumagillin tablets. A large percentage of these complaints were modified or disappeared within 24 hours if the tablets were given immediately after an adequate meal. All these complaints quickly disappeared after the fumagillin treatment was completed. Only seven patients developed diarrhea. Five cases were mild, one was moderate, and one was severe. The severe case of diarrhea developed one day after completion of therapy and recurred intermittently for 22 days. The patient was referred to his family physician for treatment. Six people developed severe weakness during fumagillin therapy. Two of the six became so affected that they could not work during the last two days of therapy. All six gradually recovered during the first 10 days after therapy.

TABLE 3.—*Reactions to Drug Therapy in Patients with Amebiasis*

	Oxytetracycline		Fumagillin	
	No.	%	No.	%
Complaints				
Loose stools *	184	44.3	115	27.1
Cramps and/or abdominal pain	25	6	98	23.1
Nausea	25	6	79	18.6
"Skin rash"	0	....	43	10.1
Mild weakness	6	....	38	8.9
Headache	1	....	28	6.6
Dizziness	4	....	26	6.1
Anal itching	30	7.2	2	....
Mild diarrhea †	4	...	5	....
Moderate diarrhea ‡	18	4.3	1	...
Severe diarrhea §	6	...	1	....
Severe weakness	0	....	6	...
Rectal burning with or without bloody stools	9	....	0	....
Burning sensation in stomach	2	....	9	....
Total courses of therapy with adequate follow-up study for drug reactions	415	....	423	....
Percentage of courses of therapy with complaints	...	62.4	...	65.8

* Loose stools: soft or semiliquid stools no more than 5 times a day.
† Mild diarrhea: 6-10 stools during one 24 hr. period.
‡ Moderate diarrhea: 6 or more stools per day during a 48 hr. period or longer.
§ Severe diarrhea: 10 or more stools per day during a 48 hr. period or longer.

"Skin rash" was the most frequent complaint occurring after the 10 day treatment period. This rash was characterized by skin-colored papules, 1 to 2 mm. in diameter, which became vesicular. It usually appeared bilaterally between the fingers and on the palmar surfaces of the hands. Occasionally the feet and arms became slightly involved, but rarely the face. The rash usually was first noted within the week after completion of treatment. Most of the 43 people who listed this complaint had only a few lesions that disappeared within 24 to 48 hours. In approximately 25% of those involved, the rash was more obvious and lasted three days. Twenty patients complained of desquamation of skin of the hands. This usually occurred within two weeks after the appearance of the rash. Most of these people showed very mild patchy involvement, but five developed complete desquamation of the skin of both hands. Although the rash and the desquamation caused concern, the only actual discomfort consisted of mild itching and slight tenderness of the hands. Nine patients complained of a "burning sensation" in their "stomachs." Six of these had great discomfort for a short time during therapy. Giving the medicament after an adequate meal seemed to give relief. The remaining three dated the onset of this complaint at the end or shortly after the 10 day treatment period. The pain occurred intermittently for as long as one month. Two of the three patients were not significantly relieved by symptomatic treatment and therefore were referred to their family physicians. This was the most severe of all the reactions to fumagillin therapy.

COMMENT

Previous evaluations of amebacides have been conducted under conditions in which the possibility of heavy prolonged exposure continued to exist, such as in mental institutions or prisoner-of-war camps, or have been retarded by the necessity of treating a small number of people at one time. The South Bend outbreak presented a nearly ideal situation for therapeutic and long-term follow-up investigation. In this outbreak a large number of people presumably were infected with the same strains of E. histolytica. E. histolytica had caused death and severe illness as well as asymptomatic cases among the people involved. Over 800 people were found to be infected at the time of this study. This permitted simultaneous evaluation of two methods of therapy. The personnel involved were exposed and were exposing others to the risks that exist in normal civilian activity. The most probable source of infection was removed before the therapeutic program was started. The people involved belonged to a relatively stable population, allowing for careful and prolonged study of each individual and his environment.[1] This indeed was an unusual opportunity for conducting therapeutic studies. The study was characterized throughout by the complete cooperation of the county medical society, local and state health agencies, the industrial concern, the union, and the personnel of the plant itself. Also cooperating were two pharmaceutical concerns, a federal health agency, and a school of medicine in the southern part of the United States. The type of teamwork available to a community in the United States today was illustrated. This factor alone would have made the study worthwhile.

One of the first problems to be faced was the question of whom to treat. The decision to treat all infected persons was based on the following considerations: the possibility of spreading infection, the inability to determine which individuals would develop more serious complications if not treated, and finally the need for an organized diagnostic and therapeutic approach to handle the large number of infected individuals. Due to this decision no attempt was made to follow an untreated group of patients as controls. The work of Frye and co-workers[5] in Korea had revealed oxytetracycline to be the most effective single agent in the treatment of acute amebic dysentery in use at that time. Oxytetracycline was chosen for this study in order to confirm its effectiveness in a large number of asymptomatic cases and by a more prolonged follow-up period than was feasible in the Korean study. A new amebacide, fumagillin, appeared in 1951. It was studied in vitro by McCowen and others,[6] Hrenoff and Nakamura,[7] and Balamuth.[8] Killough and others,[9] and McHardy and Frye[10] have used this drug in small clinical series with minimal signs of toxicity. Fumagillin was chosen for this study in order to compare its effectiveness in vivo with that of a known effective amebacide, oxytetracycline.

In the final evaluation these drugs were equally effective. A three to four month follow-up study revealed the organism to be absent from the stool in over 93% of the people treated. Approximately one year after the treatment program, a random survey revealed only 1.1% of 178 employees infected with E. histolytica. No evaluation of effectiveness in extraintestinal amebiasis could be made. Evaluation of the total number of reactions to either drug was impossible due to the lack of a control series; however, the percentage of people registering complaints was approximately the same with each drug. Most of the complaints associated with either drug were mild, only a few being severe enough to interfere with the employee's usual activities. The side-reactions to fumagillin seemed to disappear or decrease if the tablets were given immediately after an adequate meal. Most of the complaints occurring with either drug responded to symptomatic measures and disappeared after the 10 day course of treatment was completed. This study confirms the existence of two very effective, relatively nontoxic amebacides that will aid physicians in treating intestinal amebiasis.

SUMMARY

A water-borne epidemic of amebiasis in South Bend, Ind., presented an excellent opportunity for comparing the effectiveness of two amebacides. Oxytetracycline and fumagillin were equally effective. A three to four month follow-up revealed Endamoeba histolytica to be absent from the gastrointestinal tracts of over 93% of the people treated. In this therapeutic evaluation no attempt was made to include an untreated control series. No evaluation of therapy for extraintestinal amebiasis could be made. The number of patients complaining of reactions was approximately the same with either drug. The complaints were usually of a mild nature and usually disappeared after completion of therapy. The most frequent complaints were loose stools, gas pains, and nausea. Complaints characteristic of oxytetracycline were diarrhea, anal itching, and prolonged rectal irritation. Complaints characteristic of fumagillin were a syndrome of tenderness, dizziness, and extreme weakness; a typical skin rash; and gastric irritation. The availability of these two effective relatively nontoxic amebacides will aid physicians treating intestinal amebiasis. The importance of community teamwork in solving health problems has been demonstrated in the study of this outbreak of amebiasis.

---

5. Frye, W. W.; Brooke, M. M., and Weinstein, P.: Antibiotics in the Treatment of Acute Amoebic Dysentery, Ann. New York Acad. Sc. **55**: 1104-1113, 1952. Martin, G. A., and others: Comparative Efficacy of Amebicides and Antibiotics in Acute Amebic Dysentery Used Alone and in Combination in 538 Cases, J. A. M. A. **151**: 1055-1059 (March 28) 1953.

6. McCowen, M. D.; Callender, M. E., and Lawles, J. F., Jr.: Fumagillin (H-3): A New Antibiotic with Amebicidal Properties, Science **113**: 202-203, 1951.

7. Hrenoff, A. K., and Nakamura, M.: In Vitro and in Vivo Studies of a New Antibiotic, Fumagillin, with Endamoeba Histolytica, Proc. Soc. Exper. Biol. & Med. **77**: 162-164, 1951.

8. Balamuth, W.: Comparative Action of Selected Amebicidal Agents and Antibiotics Against Several Species of Human Intestinal Amebae, Am. J. Trop. Med. **2**: 191-205, 1953.

9. Killough, J. H.; Magill, G. B., and Smith, B. C.: The Treatment of Amebiasis with Fumagillin, Science **115**: 71-72, 1952.

10. McHardy, G., and Frye, W. W.: Antibiotics in Management of Amebiasis, J. A. M. A. **154**: 646-651 (Feb. 20) 1954.

CLINICAL NOTES

PRIMARY DEPRESSION OF GASTRIC SECRETION BY INSULIN IN NORMAL MAN

William H. Olson, M.D.
and
Heinrich Necheles, M.D., Ph.D., Chicago

We have reported that in the dog gastric secretion and motility are depressed considerably during the first 30 minutes after injection of insulin.[1] Recently, we have described a similar observation on the gastric secretion of patients with active duodenal ulcer. It was felt to be necessary to confirm the latter results in a comparable group of normal subjects. The stomach of a patient with active duodenal ulcer appears to be in a state of irritability and of secretory stimulation. Therefore, results obtained in such patients need not be applicable to normal subjects.

TABLE 1.—*Averages of Thirty-Three Studies of Insulin Gastric Secretion in Normal Men*

	Control		Averages, Min.							
	0	0	15	30	45	60	75	90	105	120
Blood sugar level: Mg	....	78.4±2.0*	41.6±2.3	26.0±1.4	34.4±1.3	40.4±2.3	....	48.0±2.5	....	57.6±3.0
Spread	....	57-102	13-61	9-40	19-47	14-64	....	26-78	....	28-91
Volume: Ml.	28.2±2.3	27.9±1.9	19.0±1.7	18.1±2.0	34.5±3.2	39.4±3.3	37.2±3.0	36.6±3.8	30.3±2.8	27.4±3.7
Spread	0-56	2-47	0-41	0-49 P = 0.01 †	0-94	0-111	0-71	6-125	6-90	0-92
Free hydrochloric acid: Units	34.0±2.8	37.6±2.6	27.6±2.9	20.6±2.7	70.5±4.5	80.1±5.1	83.6±5.1	78.7±5.3	68.4±5.0	63.9±4.4
Spread	0-86	0-73	0-69	0-65 P = 0.01	0-117	0-124	0-135	0-140	0-126	0-106
Total hydrochloric acid: Units	45.2±3.9	53.5±2.5	40.4±2.8	34.3±3.5	83.0±5.0	92.5±5.1	95.0±5.0	91.2±6.1	81.6±5.1	76.5±4.7
Spread	0-99	23-84	0-80	0-92 P = 0.05	0-132	0-132	0-145	14-151	14-135	0-116
Free hydrochloric acid: mEq	1.07±0.14	1.13±0.12	0.63±0.12	0.47±0.10	2.83±0.31	3.42±0.40	3.37±0.32	3.19±0.41	2.16±0.33	1.73±0.22
Spread	0-3.5	0-3.0	0-2.8	0-2.4 P = 0.01	0-8.5	0-10.5	0-9.5	0-14.9	0-7.9	0-6.1
Total hydrochloric acid: mEq	1.41±0.18	1.58±0.16	0.87±0.14	0.75±0.14	3.28±0.38	3.92±0.44	3.88±0.35	3.62±0.34	2.67±0.32	2.48±0.37
Spread	0-4.3	0.1-3.9	0-3.3	0-3.4 P = 0.01	0-10.6	0-12.3	0-10.2	0.2-15.5	0.2-9.4	0-10.0

* The ± signs denote standard error of the means.
† t-test (Fisher); P denoting significance of difference between control and 30 minute values.

PROCEDURE

Thirty-three healthy male prisoners volunteered as subjects for the test. Their ages varied between 25 and 54 years, with an average age of 40 years. A careful history was taken and physical examination was given in order to exclude disease, particularly peptic ulcer. Persons who at any time had taken baking soda or other drugs used in ulcer therapy were excluded. All subjects were hospitalized for the study. The night before the test a Levin tube was passed into the stomach, and, with slight constant suction by a Gomco pump, the 12 hour night secretion was collected. The following morning, two control samples were taken at 15 minute intervals. Then, 25 units of regular insulin was given intravenously, and thereafter 15 minute samples of gastric juice were collected for 120 minutes. Venous blood was drawn at the control period and every 15 minutes for the first hour, then at 90 and 120 minutes.

The above procedures were essentially the same as those employed in the study of patients with duodenal ulcer.[2] However, more frequent samples were drawn, and therefore the data on initial depression of gastric secretion as related to blood sugar can be considered more valid. Blood sugar levels were determined in duplicate by the Nelson method. Free and total acid was determined by titration with 0.1 *N* sodium hydroxide and dimethylaminoazobenzene and phenolphthalein indicators. Volumes were measured to the nearest one-tenth of a milliliter, and milliequivalents were calculated by multiplying total volumes of each sample with the values of units of free and total acid.

RESULTS

The results of all tests are given in table 1 and in the figure. It is seen that the lowest levels of the blood sugars were accompanied by a considerable depression of volume and acidity of gastric secretion. The typical insulin stimulation of gastric secretion occurred when blood sugar levels were rising. In no experiment did the lowest blood sugar level coincide with the peak value for secretion. As shown in table 2, the greatest incidence of minimal blood sugar levels occurred at 30 minutes after insulin injection, coinciding with the greatest incidence of maximal depression of milliequivalents of total hydrochloric acids. The typical stimulation of gastric secretion did not occur until 45 minutes after administration of insulin, and its highest incidence was in the 45 to 75 minute period.

Distinct depression of gastric secretion after administration of insulin did not occur in 5 out of the 33 experiments; in all 5 of these tests, the control values were low (0.2, 0.2, 0.7, 0.2, and 1.2 mEq. of total acidity). All subjects of this group were low secretors. In no subject were symptoms of hypoglycemia observed. The results were analyzed statistically. The two control values for secretion were not significantly different. Standard errors of the means and values for the test for significance of difference between control and 30 minute means are

---

From the Department of Gastro-Intestinal Research, Medical Research Institute, Michael Reese Hospital, Chicago, and the Indiana State Penitentiary, Michigan City, Ind.

This study was supported by an American Medical Association Brant grant. The Department is in part supported by the Michael Reese Research Foundation.

[1] Necheles, H.; Olson, W. H., and Morris, R.: Effect of Hypoglycemia on Gastric Motility, Am. J. Physiol. **129**: 429, 1940; Depression of Gastric Motility by Insulin, Am. J. Digest. Dis. **8**: 270, 1941. Necheles, H.; Olson, W. H., and Scruggs, W.: The Effect of Insulin on Gastric Secretion, Fed. Proc. **1**: 1, 1942.

[2] Olson, W. H.: Biphasic Effect of Insulin on Gastric Secretion in Man, abstracted, Seventy-First Meeting of the American Physiological Society, Fed. Proc. **12**: 106, 1953.

stated in table 1. It is seen that depression of secretion at the 30 minute period was distinctly significant. In order to permit comparison, we have arranged table 1 and the figure similarly to those in our paper on initial inhibition of gastric secretion in patients with active duodenal ulcer.[3] Comparison of the results obtained in both of these groups indicates that the present normal group responded more rapidly in both increase and decrease of secretory rate of the stomach than did the ulcer patients of the earlier study.[3] Comparing the values of secretion (milliliters, units, and milliequivalents of free and total acid), we do not find that the ulcer group[3] had a higher secretion than the present normal group. On the contrary, most of the averages of the normal group were higher than those of the ulcer group. However, this difference was not analyzed further.

COMMENT

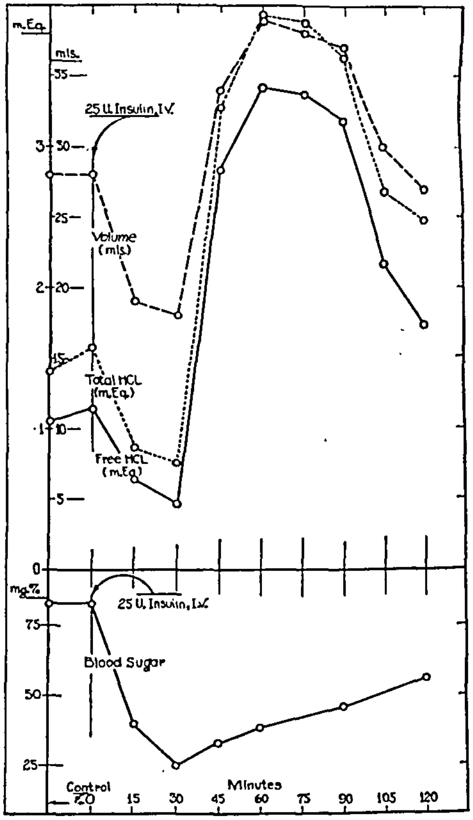
We have thus confirmed our previous observations on the dog and on the patient with duodenal ulcer that the first effect of insulin on the stomach is considerable depression of secretion.[4] This depression occurs while blood sugar levels are falling to their lowest point. The typical insulin secretion of fluid and acid begins when blood sugar levels are rising. It reaches its maximum 45 to 75 minutes after injection of insulin. An explanation of the initial drop of gastric secretion after administration of insulin is difficult; however, several possibilities may be mentioned.

Table 2.—*Numerical Occurrence of Greatest Depression of Blood Sugar Levels and of Greatest Depression and Stimulation of Secretion*

	Occurrence, Min.							
	15	30	45	60	75	90	105	120
Blood sugar level	2	22	3	0	0	0	0	0
Total hydrochloric acid depression, mEq.	7	19	2	0	0	0	0	0
Total hydrochloric acid stimulation, mEq.	0	0	9	10	6	3	1	3

We have shown previously that low acidity of gastric secretion can be due to regurgitation from the duodenum of alkaline secretions without noticeable bile.[5] However, assuming that this occurred in our present series, it could not explain the simultaneous initial depression of the volume of secretion demonstrated in the figure. The insulin we used contained glucagon, the effects of which on gastric secretion are not known. Intravenous injection of insulin stimulates the adrenal and the adrenergic system, and it may produce direct effects on the delomorphous (parietal) cells and on the blood circulation in the stomach. Insulin may stimulate the posterior pituitary gland and vasopressin (Pitressin) can cause inhibition of gastric secretion. Another possibility, indicated by us before,[2] may be that glucose diffuses out of the vagus centers when the blood sugar level is falling rapidly, producing inhibition of the centers, and diffuses into the centers when blood sugar levels are rising again, producing stimulation. The answer to these questions can only be found through further experimentation and study.

If the Hollander insulin test for vagus function is performed with one determination of blood sugar, 30 minutes after administration of insulin, the lowest or low blood sugar levels will be found, according to our results. However, if only one sample of gastric secretion is aspirated 60 minutes after administration of insulin, false negative results may be obtained. In 4 of our present series of 33 subjects, the first noticeable increase in gastric secretion was obtained 75, 75, 105, and 120 minutes, respectively, after administration of insulin. Our previous and present results demonstrate that there is no significant difference in gastric basal secretion and uropepsin secretion[6] and in the response to insulin of the stomach of the normal person as compared to that of the patient with duodenal ulcer.



Simultaneous initial depression of the volume of gastric secretion and fall of blood sugar level, average of results on 33 subjects.

SUMMARY

In 33 normal male volunteer prisoners, gastric secretion was stimulated by administration of insulin intravenously. The secretion of fluid and acid dropped considerably during the first 30 minutes and then rose to its greatest value 60 minutes after the administration of insulin. The depression of secretion coincided with falling blood sugar levels, and stimulation of secretion coincided with rising blood sugar levels. Response of a normal stomach to stimulation by intravenously given insulin is about the same as in duodenal ulcer patients.

29th St. and Ellis Ave. (16) (Dr. Necheles).

---

[3] Olson, W. H., and Necheles, H.: Initial Depression of Human Gastric Secretion by Insulin, Gastroenterology **24**: 362, 1953.

[4] Olson, W. H., and Bridgwater, A.: Gastric Secretion Studies on Inmates of a Penitentiary, in Abstracts of Communications, Proceedings of the 12th International Physiological Congress, Montreal, 1953, p. 652.

[5] Olson, W. H., and Bridgwater, A. B.: Nocturnal and Insulin Gastric Secretion, J. A. M. A. **154**: 977 (March 20) 1954.

[6] Olson and Necheles.[3] Olson and Bridgwater.[5]

TREATMENT OF A CASE OF STOKES-ADAMS DISEASE BY EXTERNAL ELECTRIC STIMULATION

Leonard B. Rose, M.D.,
and
Walter Wartonick, M.D., Albany, N. Y.

The treatment of Stokes-Adams disease has recently been implemented by the availability of an external electric stimulator known as the Cardiac Pacemaker developed largely through the efforts of Dr. Paul M. Zoll.[1] The nature of this apparatus and the details of its operation have been reported elsewhere.[2] The number of cases treated by this method is still small. To our knowledge the following case is the first one outside of the Boston area treated with the type of machine developed by Dr. Zoll.[3] Problems encountered in the application of this method are described. Autopsy findings of interest are included because of the suggestion of irritation of the pericardium by the stimulator.

REPORT OF A CASE

A 64-year-old man was admitted to the cardiovascular section of the Albany Veterans Administration Hospital for the first time on Feb. 11, 1954, because of swelling of the ankles and progressive shortness of breath of three months' duration. Four years previously a slow heartbeat had been detected by his physician, who advised him to restrict his activities. At infrequent intervals since then he had had momentary "black-out spells" from which he recovered spontaneously without ill-effect. These attacks had not recurred for the nine months before admission. In November, 1953, on two successive nights he suffered sudden inability to breathe accompanied by precordial and left lower chest pain that forced him to sit up during the night. He did not seek medical advice. After these two episodes he began to develop progressive dyspnea on exertion, and two weeks before admission swelling of the feet and ankles appeared. History and family history were not contributory.

Physical examination on admission showed a well-developed and well-nourished white man in no acute distress. The blood pressure was 240/50 mm. Hg, temperature 98.2 F, pulse rate 42, and respiration rate 20. The eye, ear, nose, and throat examination revealed nothing remarkable except for grade 2 arteriosclerotic changes in the ocular fundi. There was a diffuse symmetrical enlargement of the thyroid gland. There was no cervical venous distention. Fine rales were heard over the left lower lobe posteriorly and along the left lateral chest wall. The point of maximal impulse was in the sixth intercostal space in the midaxillary line. The heart rate was 40, regular, with varying intensity of the first sound. A grade 2 systolic murmur was heard at the apex. The liver was enlarged four fingerbreadths below the costal margin. There was 2+ pitting edema of both feet and ankles.

Laboratory examinations showed a 1+ reaction for albumin in the urine. The results of a complete blood cell count and *nonprotein nitrogen and fasting blood sugar determinations* were not remarkable. A chest x-ray showed that the heart was markedly enlarged, probably more to the left. The initial electrocardiogram showed complete heart block with an idioventricular rhythm arising in the left ventricle at a rate of 40 beats per minute.

The initial impression was that of hypertensive and arteriosclerotic heart disease complicated by Stokes-Adams disease with moderate decompensation. The mass in the neck was thought to be a nontoxic goiter.

Hospital Course.—On a regimen of bed rest, with salt restriction and administration of a mercurial diuretic over a period of three days, there was considerable clearing of the lungs and peripheral edema with a weight loss of 15 lb. (6.8 kg.). Ephedrine sulfate, 25 mg. by mouth every six hours, was given because of the history of syncope. On the sixth hospital day the patient lost consciousness momentarily while lying in bed but recovered spontaneously. After this the electrocardiogram showed a shift of the pacemaker to the right ventricle with a rate of 32. The dose of ephedrine was supplemented by ephedrine parenterally, 25 mg. every four hours, but the heart rate remained between 28 and 32 per minute. The blood pressure averaged 180/60 mm. Hg. The patient remained symptom-free. Because of the imminent breakdown of the spontaneous pacemaker, he was kept at bed rest and observed closely. On the 18th hospital day repeated episodes of asystole occurred followed by syncope with tonic and clonic convulsions. Aqueous epinephrine in doses of 3 to 5 minims (0.2 to 0.3 cc.) was given repeatedly intravenously, and for a while a heart rate of 90 per minute was achieved with a continuous infusion of epinephrine, 4 mcg. per milliliter. Eight hours after the onset it became impossible to regulate the heart rate with intravenously given epinephrine. The mechanism as shown by the electrocardiogram varied from prolonged asystole to ventricular tachycardia (fig. 1). Increasing doses of epinephrine were required to excite the ventricles. A continuous infusion of 10 mcg. per milliliter at 5 ml. per minute was insufficient, and "booster doses" had to be given intravenously. Thirteen hours after the onset of this series of attacks, the external Cardiac Pacemaker was applied and successfully established a regular rhythm at 50 beats per minute with a good peripheral pulse and full consciousness. Much discomfort due to the associated pectoral muscle contractions was present and limited the frequency and voltage that could be applied. After one hour of use of the pacemaker, the frequency of stimulation was reduced, spontaneous beats made their appearance, and the apparatus was turned off. Two hours later it was again necessary to use the machine for another two hour period. His heart then beat spontaneously for three hours, when another attack of syncope occurred and the pacemaker was applied again. An electrocardiogram at the onset of this episode showed ventricular flutter. This disturbance abated, and the electrocardiogram recorded only the typical sequence of the artificially produced systole. Again it was possible to stop the machine, but five hours later asystole recurred and the external electrical stimulation had to be resumed. This time it was necessary to continue external stimulation without interruption for the next 26 hours. The patient was conscious, the blood pressure averaged 118/72, and the pulse averaged 42. Meperidine (Demerol) was required because of the muscular pain produced by the electrical stimulation. Digitalization with digoxin, 0.5 mg. every six hours, was

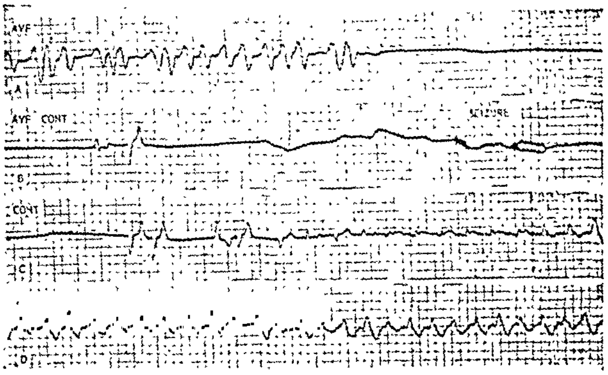


Fig. 1.—Ventricular tachycardia alternating with asystole while the patient was receiving large doses of epinephrine. The occurrence of a seizure is indicated by the appearance of interference (*B*).

From the Cardiovascular Section of the Veterans Administration Hospital and the Albany Medical College. Dr. Rose is now at Portland, Ore.

The Cardiac Pacemaker is manufactured by the Electrodyne Co., Norwood, Mass.

[1] Zoll, P. M.: Resuscitation of Heart in Ventricular Standstill by External Electric Stimulation, New England J. Med. **247**: 768, 1952.

[2] Zoll, P. M.: Linenthal, A. J., and Norman, L. R.: Treatment of Stokes-Adams Disease by External Electric Stimulation of Heart, Circulation **9**: 482, 1954.

[3] Zoll, P. M.: Personal communication to the authors.

instituted because of the appearance of pulmonary congestion. At the end of the 26 hours, when the machine was switched off briefly to see if the heart could again beat spontaneously, it did so almost immediately (fig. 2). The patient was able to continue on his own at a rate of 43 per minute. The blood pressure was 150/60. Altered serum electrolytes and a nonprotein nitrogen level of 84 mg. per 100 ml. were corrected gradually by fluids given parenterally. The patient's sensorium, which had become a little cloudy, rapidly cleared.

Progress was then fairly smooth until the 27th hospital day, when the patient coughed up a moderate amount of clotted blood. Pulmonary embolization was suspected, and bishydroxycoumarin (Dicumarol) therapy was begun. The patient did fairly well but was kept under constant observation. On the 30th hospital day his spontaneous pacemaker broke down temporarily, and the external stimulation was again used. A chest x-ray on the 33rd day showed a triangular density lying just above the right leaf of diaphragm, which was interpreted as consistent with pulmonary infarct. On the 39th hospital day the machine had to be employed again, intermittently, for intervals as long as nine hours. On the 40th day there were further complications of fever, burning on urination, and pyuria. The anticoagulant treatment had to be stopped with vitamin K_1 because of a rapid rise in the prothrombin time associated with the impaired renal function. On the 42nd hospital day, after a period of 11 hours of continuous stimulation, the patient suddenly lost consciousness and became pulseless. Increase in the frequency and voltage did not revive the patient. When epinephrine, 4 mcg. per milliliter, was given to the patient intravenously, he began to respond to the pacemaker, which had to be run continuously for the next 25 hours. For two days he was able to continue on his own, but on the 46th day he broke down again. He no longer responded well to the pacemaker. The maximum cardiac rate that could be obtained was about one-half that of the machine. Finally, while still being maintained with the external pacemaker, the patient had a convulsion, the pulse became unobtainable, and all attempts to revive him failed.

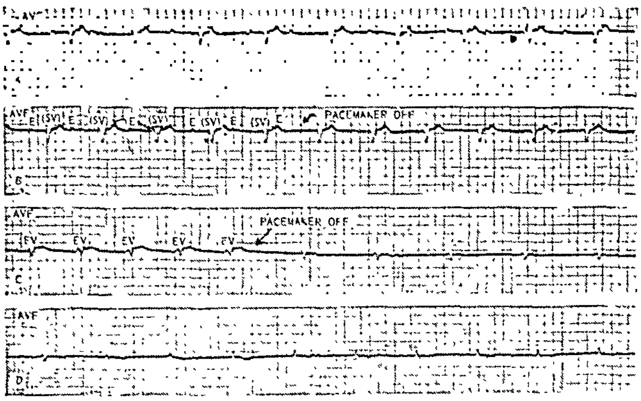


Fig. 2.—Dissociation between the external stimuli (E) and the spontaneous ventricular beats (SV) is shown (*B*). All beats (V) were in response to the stimulator (E) until the pacemaker was turned off (*C*). Auricular flutter was also present at this time.

Postmortem Examination.—On gross examination the pericardium was hyperemic over the apex. There was hypertrophy of both right and left ventricles. Severe coronary arteriosclerosis was present, the lumen of the anterior descending branch of the left coronary artery in its proximal portion was pinpoint in size. There was no gross evidence of recent or old myocardial infarction. Two small old pulmonary infarcts were found in the right lung. The kidneys showed minimal scarring. Cystitis and prostatitis were present. Microscopic examination showed chronic pericarditis with focal proliferation and swelling of the pericardial mesothelial cells and a broad zone of hyperemia and chronic inflammatory exudate in the underlying epicardial fat. Numerous sections of the myocardium showed many areas of scarring but no recent infarction. The kidneys showed considerable glomerular scarring and hyaline thickening of the afferent arterioles.

COMMENT

The effectiveness of the external electrical cardiac stimulator when all other measures failed is well illustrated by this case. Unfortunately, the long-term results are limited by the severity of the intrinsic heart disease. The apparatus can only serve to carry a patient over until the physiological mechanism necessary to the automaticity of the heart becomes reestablished. If there is insufficient collateral coronary blood flow to accomplish this, any benefit will only be temporary as illustrated by this report. Constant vigil is needed to detect the development of recurrent episodes to insure prompt treatment. When the heart slows to 30 beats or less per minute, it is usually a sign of impending breakdown of the patient's idioventricular pacemaker. This sign, which was pointed out by Dr. Zoll, occurred frequently with our patient and was very useful. Nourishment, fluid, and electrolyte regulation are extremely important so that the myocardial metabolism will be enhanced to an optimum degree. Although the stimulator maintained a conscious patient, adequate blood pressure and palpable pulse, the nonprotein nitrogen level became elevated after each episode of prolonged treatment with the machine. This was interpreted to be due to a combination of the underlying renal disease, reduced renal blood flow, and some dehydration because of justifiable cautious administration of fluids to a patient already in mild congestive heart failure.

The autopsy findings of hyperemia and inflammatory changes in the pericardium may have been due to the repeated and prolonged stimulation. There was no other likely cause for the pericarditis. The patient was not considered to be in uremia clinically, and there was no fibrinous pericarditis present to suggest uremic pericarditis. There was no necrosis, as such, except in the superficial layers of the skin immediately under the electrodes. According to Dr. Zoll, there have not been any autopsy findings that would indicate untoward anatomical effects in the heart or pericardium due to the electrical stimulator.

It is necessary to keep in mind the fact that apparent asystole with convulsions and syncope may be due to ventricular tachycardia. These attacks may alternate with attacks of ventricular standstill in the same patient. Although the external electric stimulator is not effective in terminating the former episode, it will take over when the burst of ventricular tachycardia ends with cardiac standstill or very slow idioventricular rate, as it did in our case on one occasion. Use of epinephrine intravenously is hazardous in patients with this situation, and frequent electrocardiograms are needed. The exact nature of the terminal episode in our patient is not known because the electrocardiograph was not turned on. It could have been due either to ventricular fibrillation obviating a response to the machine or to a simple failure to respond to further artificial stimulation. It may have well been due to the latter because, as noted in the protocol, the heart was unable to respond to every stimulus of the machine during the terminal hours. This has been described in another case.[2]

In conclusion, it is observed that this apparatus is capable of producing a striking effect in Stokes-Adams disease. Its application is simple in principle but requires the persistence, tenacity, and cooperation of the hospital staff in order to be effective. A delay of as much as four minutes in bringing treatment to bear would be too late.

SUMMARY

In a case of Stokes-Adams disease external electrical stimulation by the cardiac pacemaker was effective in resuscitating the heart on many occasions over a period of 28 days. The machine was used repeatedly, and the longest period of continuous application was 26 hours. Finally a response was no longer obtained, and the patient succumbed. An alert and cooperative hospital staff is mandatory in this form of treatment. The problems involved include the severity of the underlying heart disease, ineffectiveness of the apparatus in Stokes-Adams attacks due to ventricular tachycardia-fibrillation, management of pain, and possible induction of mild pericarditis by the stimulator.

1920 N.W. Johnson St., Portland 9, Ore. (Dr. Rose).

COMPULSORY CASH DISABILITY BENEFITS

This is the second in a series of articles that THE JOURNAL *will publish during the next several months concerning the proposal to establish a national system of cash benefits for persons who are totally and permanently disabled. The first article appeared in* THE JOURNAL, *Aug. 20, page 1442. All physicians are urged to acquaint themselves with the facts on this vital issue.*—ED.

THE A. M. A. VIEWPOINT

As reported in the first article of this series, the United States House of Representatives near the end of the last session of Congress passed H. R. 7225, known as the Social Security Amendments of 1955. That bill includes several far-reaching provisions, one of which would make totally and permanently disabled persons eligible to receive their Social Security retirement benefits at age 50 instead of age 65. The House passed this legislation without open committee hearings and under a suspension of the rules that barred amendments and limited debate. Fortunately, the Senate Finance Committee refused to be stampeded into hasty action. It postponed consideration of the measure until the second session of the 84th Congress, when there will be extensive public hearings on the bill.

The American Medical Association, like a growing number of organizations and individuals in this country, is seriously concerned over this obviously political attempt to rush through an expansion of social security without careful public study. Our concern involves not only the disability benefits proposal, which would directly affect medical practice and existing rehabilitation programs, but as citizens, we are also naturally interested in the broader trends and implications inherent in continued expansion of the Social Security system.

Social Security has developed over the past 20 years to the point where it is no longer an experiment; it now is a major cog in our national economy, directly affecting the income, purchasing power, and life planning of most people. By the same token, it also has reached a magnitude where any further changes may have a profound influence on the nation's economic, social, and political future. The experience of the past two decades has demonstrated the danger arising from the nation's failure to decide just what social security is supposed to accomplish and just where it is supposed to stop. Bills liberalizing the program never contain any specific, well-defined limitations. Year after year the members of Congress introduce a growing number and variety of proposals—calling for still more changes, still greater expansion, still newer types of coverage. Prior to summer adjournment this session, for example, 247 such bills were dropped in the congressional hoppers.

This trend is moving closer and closer toward the fields of disability, rehabilitation, and medical care. The questions that it raises, however, concern not just the medical profession but all of the American people. Those vital questions involve not only the philosophy of the social security program but also its cost and tax burden—particularly as they affect the future generations who eventually will have to pay the piper. By lack of foresight and of sober study, by reckless disregard for the economic realities of increasing liabilities and costs, we might ultimately wreck the social security system itself. As pointed out editorially by the Chicago *Daily News* on July 20, 1955, "a sober estimate of how many billions the government is promising, and how it will be paid for, is imperative before we go farther. It would be unthinkable for some future Congress to reneg on a contract sealed by the payment of taxes. But we also have no moral right to obligate future taxpayers to a burden that could become so great as to lower their own standard of living, while they pay for the generous but ill-advised impulses of their predecessors."

When the 1955 legislation comes up for consideration by the Senate Finance Committee next January, the American Medical Association will not be the only organization displaying an active interest in the issue. More and more groups and individuals, outside the medical profession, are becoming seriously concerned over the implications of our entire social security system—what it is, what it should be, and what it is leading us toward. Just recently, for example, the American Legion in Miami, Fla., and the insurance committee of the Council of State Chambers of Commerce in Atlantic City, N. J., passed resolutions recognizing the need for thorough study of the basic principles, objectives, and operations of the social security system.

The need for such a study was well expressed in December, 1954, by Louis W. Dawson, then president of the Life Insurance Association of America, when he said:

> Before this country's social welfare plans are extended further, or before any new ones are adopted, I would suggest a thorough and impartial study of our whole social welfare system and all

THE JOURNAL
OF THE AMERICAN MEDICAL ASSOCIATION
Edited Under the Direction of the Board of Trustees
Editor and Managing Publisher . . AUSTIN SMITH, M.D.
Associate Editor . . . . JOHNSON F. HAMMOND, M.D.
Editor for Medical Literature Abstracts . GEORGE HALPERIN, M.D.
Assistant Editor . . . . WAYNE G. BRANDSTADT, M.D.

Subscription price . . Fifteen dollars per annum in advance
Cable Address . . . . "Medic, Chicago"

WORLD MEDICAL ASSOCIATION MEETING IN VIENNA

The recent General Assembly of the World Medical Association in Vienna left no doubt in the minds of those present of the need for physicians to realize that the practice of medicine is far greater in scope than ever before. No longer can the practitioner content himself with trying to keep informed on the newest drug, surgical technique, or diagnostic tool. He also must face the fact that medical problems occurring elsewhere in the world may some day confront him in his own practice in his part of the world. In addition, he must recognize the need for appreciating the rapidly growing general interest in sociologic problems bearing on medicine.

The World Medical Association is a young organization, its ninth General Assembly being held this year. However, it has become known throughout the world for its work, and national medical societies, including the American Medical Association, support its efforts. During the course of a year the World Medical Association initiates an appreciable number of studies and recommendations. The latter are, of course, not binding on any national medical group, but their soundness is evident in the fact that many have been adopted in principle by other groups. Delegates at an annual assembly may discuss, for example, medical education, medical ethics, emblems for doctors and defense units in times of peace and war, supply of doctors, relationship between physicians and the press, and visiting lecturers and professors for the so-called undeveloped countries, to mention just a few topics.

Of great interest always are the discussions on social security. Although the words social security may be defined and applied differently in various parts of the world there is never any difference of opinion at the assemblies about what the delegates have in mind. They are ever mindful of the need for providing the best possible medical care to their patients. And they never forget that circumstances may cause plans for medical care to vary in different countries. But all are united in opposition to unnecessary interference by a government in medical care plans, and they resent apparently without exception any attempts on the part of government officials to arbitrarily interject themselves between the doctor and his patient. In these troubled times it is indeed heartening to see the depth of desire in the hearts of physicians throughout the world to preserve for their patients those rights and freedoms that best meet health needs. It is only natural then that doctors should discuss social security in detail when they have an opportunity to meet with others from over the world and share experiences and thoughts.

Elsewhere in this issue of THE JOURNAL (page 1054) is a timely and revealing statement by Dr. Dag Knutson of Sweden. If there is any doubt in anyone's mind about how the cost of a social security program increases it will be dispelled on reading the Knutson article. One of the special recent interests of the World Medical Association has been the International Social Security Association, a body that is allied to the International Labour Office and is dedicated to the extension of social security coverage. This body has adopted 15 principles that, if enacted in any country, would completely subject the doctor and his patient to government control. They would be told what to do and how to do it and when to do it so far as medical practice is concerned. The officers of the World Medical Association have led an unceasing fight against such control, and it may well be that such watchfulness by the doctors themselves may be the means of preventing socialism, as it is defined in the United States, from creeping in a back door. The doctors of the United States must be always alert to the piecemeal advancement of legislation that in time would reduce all medical care to the level of government medical memorandums. If the 15 principles advocated by the International Social Security Association ever would be adopted we could forget about piecemeal or any other legislation because the doctors then would be merely serfs of the government.

Vienna is an impressive city for a medical meeting, and those who attended the World Medical Association meeting in 1955 will long remember with pleasure the beauty of the buildings, the ever-present signs of hospitality, and the graciousness of the people. Whether one was interested in interesting medical techniques or wonderful food, in architecture or in the arts, or just in the joy of gay living, Vienna provided the setting. It is doubtful if anyone left the city without saying *auf Wiedersehen* instead of good-by. The Vienna meeting was successful for those in attendance and for doctors throughout the world. It serves well as a foundation for the next general assembly, which will be held in October, 1956, in historic and interesting Havana, Cuba. In 1957 the general assembly will be held in September in Istanbul, Turkey. In the meantime, the council of the association will hold spring meetings in the next two years, one in Germany, the other in Norway. The deliberations of the council and of the delegates at the assemblies are published in abstract form in the *World Medical Journal* and from time to time in THE JOURNAL of the American Medical Association. All members of the United States supporting committee of the World Medical Association receive the *World Medical Journal*. Others may subscribe individually or may join the supporting committee on payment of $10 per annum. This is a small sum to pay for the returns that stem from the work of the association. The advancement of medical knowledge and the continuation of freedom for medical practice are just two of the benefits that the World Medical Association is striving to provide. A check for $10 to the United States Supporting Committee, World Medical Association, 345 E. 46th St., New York 17, will permit any doctor to be prepared for participation in the 10th general assembly in Cuba in 1956. At the same time he can gain satisfaction from the thought he individually is supporting an organization that the House of Delegates of the American Medical Association repeatedly has commended.

INCREASED HOSPITAL BIRTHS IN THE UNITED STATES

Throughout the United States the number of babies born in hospitals has shown a steady increase. Today, there is definite evidence that the number of registered live births in American hospitals has risen appreciably since 1952, when the latest official data became available. At that time about 3,530,000 infants, or 91.7% of all births in the United States, were delivered in hospitals, as the term hospitals is used by the National Office of Vital Statistics. Only 3,170,000, or 81.0%, of all births in the United States occurred in the 6,665 hospitals registered by the American Medical Association in 1952.[1] In the white population the proportion of hospital-born babies (in registered as well as nonregistered hospitals) increased from 59.9% to 95.7% during the period between 1940 and 1952, and among the nonwhite population it increased from 26.7% to 66.4%.[2]

In recent years more and more women have been encouraged to utilize hospital facilities for maternity. In great measure this is due to three factors: first, hospital facilities have grown in number, have improved in quality, and have become more accessible to large numbers of prospective mothers; second, as a result of improved economic conditions in the United States, a larger proportion of the population has been able to afford hospital services; and, finally, this trend has been accelerated by the rapid development of hospital and medical insurance plans. Fortunately, increased hospital births have helped to reduce maternal and infant mortality. It appears likely that this trend will continue as more hospitals in this country make adequate provisions for specialized medical and nursing care for newborn babies.

HOW TO WRITE YOUR CONGRESSMAN

Members of the medical profession have had compelling reasons in recent years to take special interest in their congressmen. At this time there appear to be few topics of more interest than the health of the population. This subject certainly has made taxes and defense, for example, items of conversation and congressional study of almost secondary political importance. In other words, health is news today, and it also is political fodder for any campaign.

Physicians throughout the nation from time to time should express themselves on matters that concern them and their patients. The physician always must keep in mind the best interests of his patient. As a practitioner he has a right also to demand things that best enable him to practice the type of medicine for which he has trained and devoted himself; and, as a citizen, he can and should demand what he thinks is best for his country.

The Hoover Report Division of the Taxpayers' Federation of Illinois (an Affiliate of National Citizens Committee for the Hoover Report) has issued a small pamphlet in which are suggested certain rules for writing your congressman if the letters are to have the most effect: 1. Write on a specific issue or principle and do not try to cover more than one in a letter. 2. Be brief. Tell your point of view and your reasons. 3. Do not follow a form letter. Give your own ideas in your own way. It is the straightforward, sincere letter that commands attention. 4. Be friendly and courteous. Do not be abusive. 5. Do not use carbon copies. Write to each one individually. 6. Write a "thank you" note when one of these men does something you like. They are often criticized, seldom praised. 7. Be sure to sign your letter legibly and give your address.

As is aptly stated in this pamphlet, "You elect these men to represent you, but they can't represent you unless you tell them what you want. If you remain silent, don't blame your legislator for voting contrary to your wishes. Blame yourself."

FEDERAL MEDICAL SPENDING

In this issue (page 1023) is the third annual report on federal health spending prepared by the Washington Office of the American Medical Association. The report lists the appropriations for federal medical spending for this year and last year, plus funds carried over, and gives a breakdown of the expenditures based on estimates furnished by the various departments. Some 20 Federal departments, agencies, and commissions have budgets for medical spending amounting to a total for the fiscal year ending June 30, 1956, of more than 2.2 billion dollars, a new high, and an increase of 6.4% over last year. This total is about 15 times the amount needed to maintain Congress and the federal courts and four times more than is spent by either the Labor Department or the Post Office Department. The Department of Health, Education, and Welfare budget shows a 32% increase over last year, a new high, with a total of more than one-half billion dollars. Only two other federal agencies, the Veterans Administration and the Defense Department, have budgets for medical spending of over the one-half billion dollar figure.

---

[1] Hospital Service in the United States, report of the Council on Medical Education and Hospitals of the American Medical Association, J. A. M. A. 152: 143-163 (May 9) 1953.

[2] Statistical Bulletin, Metropolitan Life Insurance Co. 36: 8 (Aug.) 1955.

ORGANIZATION SECTION

RESOLUTIONS TO BE INTRODUCED AT BOSTON MEETING

The Secretary of the Association has been informed that the following resolutions will be introduced in the House of Delegates at its sessions to be held in Boston Nov. 29-Dec. 2, 1955, by delegates from Arkansas, No. 1; Texas, Nos. 2-5; the Section on Preventive and Industrial Medicine and Public Health, No. 6; and Massachusetts, No. 7.

RESOLUTION NO. 1 ON WOMAN'S AUXILIARY SUPPORT OF A. M. E. F.

WHEREAS, The American Medical Association established in 1950 the American Medical Education Foundation, "to provide an instrument through which individual physicians, state and county medical societies, and other professional organizations can make contributions in support of medical education"; and

WHEREAS, The Woman's Auxiliary to the American Medical Association has made contributions to this Foundation annually since 1951, showing an increasing interest in its success; therefore be it

Resolved, That the House of Delegates of the American Medical Association requests the Woman's Auxiliary to continue its efforts in raising funds for medical education by urging each of its constituent auxiliaries to participate actively in financial support of the American Medical Education Foundation.

RESOLUTION NO. 2 ON DISTRIBUTION OF SALK POLIOMYELITIS VACCINE

WHEREAS, Dr. Jonas Salk has accomplished for the National Foundation for Infantile Paralysis one of its major purposes, namely the development to a commercial state of an apparently effective vaccine against poliomyelitis; and

WHEREAS, Further research by him and other investigators gives promise of improvement of poliomyelitis immunization with consequent continued need of supporting funds; and

WHEREAS, The National Foundation for Infantile Paralysis has stated its intention to be out of the business of purchasing and supplying poliomyelitis vaccine by Oct. 1, 1955; now therefore be it.

Resolved, That we, the members of the American medical profession, do heartily approve the publicly expressed policy of the National Foundation for Infantile Paralysis to return to, and maintain, its original policy of devoting its funds to proper research and to assistance in the actual care of patients disabled by poliomyelitis; and be it further

Resolved, That the House of Delegates of the American Medical Association go on record as recommending that the further purchase and distribution of Salk vaccine be carried on by the presently available commercial avenues used for other immunizing agents.

RESOLUTION NO. 3 ON AMENDMENT OF CONSTITUTION OF UNITED STATES REGARDING ELECTORAL COLLEGE

WHEREAS, The conditions existing at the time of the founding of the United States of America now have changed very materially, making obsolete the original concept by which the Electoral College would theoretically and impartially select the most able men of the country for President and Vice-President; and

WHEREAS, This obsolete machinery gives opportunity for states of dense population to exercise undue influence in the election of President and Vice-President; and

WHEREAS, S. Res. 3, the so-called Mundt-Coudert amendment, now pending before Congress, would in a simple manner do much toward correcting the inequities mentioned by providing for a direct district election of electors; therefore be it

Resolved, That the House of Delegates of the American Medical Association strongly urge on the Senate, the House of Representatives, and the individual states the favorable consideration and approval of said Mundt-Coudert amendment.

RESOLUTION NO. 4 ON "DOCTOR-DRAFT" LAW

WHEREAS, In spite of the feeling of the medical profession that no further drafting of physicians as a class into the military services was justifiable on the basis of exigency, the President and Congress did extend this legislation for two years; and

WHEREAS, Such legislation is strictly class legislation and therefore discriminatory and unconstitutional; now therefore be it

Resolved, That the Board of Trustees of the American Medical Association be requested and empowered to prepare and financially support a test case of the present "Doctor-Draft" law through the federal courts to and including the Supreme Court of the United States, for the purpose of securing a direct, final, and clear judicial opinion on the constitutionality of the said "Doctor-Draft" law.

RESOLUTION NO. 5 ON SEARS-ROEBUCK FOUNDATION PLAN FOR MEDICAL PRACTICE UNITS

WHEREAS, The Sears-Roebuck Foundation, in cooperation with the American Medical Association, has established a new plan to assist in establishing medical practice units in areas where additional medical care is needed and for physicians who are unable to secure bankable commercial loans elsewhere; and

WHEREAS, The medical profession for many years has directed much research and planning aimed at providing the best possible distribution of medical facilities throughout the United States; and

WHEREAS, One of the obstacles encountered in the establishment of practices in small cities and towns or rural areas has often been the physician's inability to finance the increasing expense of his office and equipment; and

WHEREAS, The Sears-Roebuck Foundation in providing an interest-free loan fund properly administered provides one avenue to meet this problem of financing; and

WHEREAS, The Sears-Roebuck Foundation has sought and received the assistance of medical leadership in designating areas of need in determining proper loans; and

WHEREAS, The House of Delegates of the American Medical Association desires to commend Sears-Roebuck on the splendid cooperation offered the medical profession through the planning and establishment of this foundation and this special project; and

WHEREAS, It is the belief that the example set by the Sears-Roebuck Foundation is a worthwhile pattern that other business and industrial leaders may follow in assisting in an over-all effort to provide the best medical care in the world to the entire population of our nation; now therefore be it

Resolved, That the House of Delegates of the American Medical Association go on record as commending this fine business organization for thoughtfulness and foresight in creating and sponsoring this worthwhile project; and be it further

Resolved, That copies of this resolution be sent to the proper officials of Sears-Roebuck and the Sears-Roebuck Foundation.

RESOLUTION NO. 6 ON CHANGING NAME OF SECTION ON PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH

WHEREAS, The name of the Section on Preventive and Industrial Medicine and Public Health is long and unwieldy; and

WHEREAS, The specialty of preventive medicine is now recognized to include the disciplines of public health, aviation medicine and occupational medicine; and

WHEREAS, The American Board of Preventive Medicine, approved by the Council on Medical Education and Hospitals, now certifies and recognizes specialists in these three fields; and

WHEREAS, The prevention of disease is the fundamental and essential philosophy of these groups; therefore be it

Resolved, That the Section on Preventive and Industrial Medicine and Public Health respectfully request that the House of Delegates of the American Medical Association change the name of the Section to the Section on Preventive Medicine.

RESOLUTION NO. 7 ON AMENDMENT OF PRINCIPLES OF MEDICAL ETHICS, CHAPTER IV, SECTION 1

WHEREAS, Some physicians have abused the Principles of Medical Ethics by claiming insurance money for the care of their own families; and

WHEREAS, Chapter IV, Section 1, of the Principles of Medical Ethics of the American Medical Association reads:

> As a general rule, a physician should not attempt to treat members of his family or himself. Consequently, a physician should cheerfully and without recompense give his professional services to physicians or their dependents if they are in his vicinity; and

WHEREAS, Physicians are called on to care for physicians or their families who may come from the vicinity or from a distance for consultation, and as insurance to pay for professional medical services may be available as recompense; therefore be it

Resolved, To amend Chapter IV, Section 1, of the Principles of Medical Ethics to delete the words "consequently," "and without recompense," and "if they are in his vicinity" so that the section shall read as follows:

> As a general rule, a physician should not attempt to treat members of his family or himself. A physician should cheerfully give his professional services to other physicians or their dependents.

FEDERAL MEDICAL SPENDING FOR FISCAL YEAR ENDING JUNE 30, 1956

This is the third annual report on federal health spending prepared by the Washington Office of the American Medical Association. It is a factual study based on budgets, appropriation bills, and information obtained directly from government agencies and departments. The report shows that this year the Department of Health, Education, and Welfare, with almost a one-third increase, reaches a new high mark in spending for health and medical programs—more than half a billion dollars. Only two other agencies' medical spending is over the half-billion figure, the Defense Department and the Veterans Administration.

Compared with last year, HEW is spending 32% more in the health fields. The increase—$127,754,900—is explained largely by sharp boosts in funds for Hill-Burton hospital construction, for vocational rehabilitation, for medical research, and for the medical care of the indigent, and by a 30 million dollar appropriation to purchase Salk vaccine and finance inoculation campaigns.

Total federal health spending also will reach a new high of over 2.2 billion dollars during the current fiscal year, about $2,268,800,000, a 6.4% increase over last year. Even in a national budget well up in the billions, this figure for federal medical-health spending is not inconsequential. It is about 15 times the amount needed to maintain Congress and the federal courts, 14 times the total budget of the State Department, and four times more than is spent by either the Labor Department or the Post Office Department. Expressed another way, Uncle Sam puts up $15 of every $100 spent by the American people (publicly or privately) for health and medical purposes, from purchase of toothpaste to financing cancer research.

In this special report are listed first the actual appropriations for this year and last year, plus funds carried over, then follows a breakdown based on estimates furnished by the various departments.

MEDICAL-HEALTH BUDGETS OF FEDERAL DEPARTMENTS, AGENCIES, AND COMMISSIONS FOR THIS FISCAL YEAR

Summary of Budgets

Agency	Fiscal 1956	Fiscal 1955
Department of Defense	$818,104,500	$844,087,500
Veterans Administration	790,185,800	754,819,344
Department of Health, Education, and Welfare	526,935,400	399,180,500
Federal Civil Defense Administration	30,450,000	28,755,000
Atomic Energy Commission	27,700,000	26,800,000
International Cooperation Administration	25,441,000	31,137,900
Department of State	13,669,790	12,607,667
Department of Labor	7,336,000	7,171,857
Federal Employees Health Program	6,000,000	6,000,000
Department of Interior	5,770,000	5,837,909
Panama Canal Zone	5,702,900	5,800,503
National Science Foundation	5,000,000	3,600,000
Department of Treasury	2,990,000	2,770,000
Department of Justice	1,470,000	1,277,362
Federal Trade Commission	1,000,000	1,000,000
Civil Service Commission	382,600	350,000
Department of Commerce	277,586	299,733
National Advisory Committee to Selective Service	180,000	147,444
President's Committee for Handicapped	130,000	87,653
Health Resources Advisory Committee	101,000	90,000
Totals	$2,268,826,576	$2,131,820,372

DEPARTMENT OF DEFENSE

(This Year: $818,104,500—Last Year: $844,087,500)

Army Medical Services *....................$300,000,000

(Last year: $325,000,000)

The decrease of $25,000,000 (approximately 8%) in Army medical spending for the current fiscal year is attributed to a projected cut of 4,500 medical personnel, both civilian and military. The totals include estimated operating and construction costs for all three services.

Air Force Medical Services *.................$286,000,000

(Last year: $280,000,000)

---

* Because the Defense Department's accounting system does not isolate medical from other spending, this total is a combination of: (*a*) actual planned spending in a few identifiable categories, like civilian salaries, supplies, and equipment, and (*b*) Department's estimate of the remaining costs. Missing from this estimate is a breakdown showing spending for such services as preventive medicine, education, and training. This breakdown was available to us last year only because the Department, at the request of the Hoover commission, made a special study of its budget, out of which came the separate totals.

The Air Force expects to spend about $6,000,000 (approximately 2%) more this year, mostly to support a planned increase of 929 civilian and military medical personnel.

Naval Medical Services *....................$232,000,000

(Last year: $239,000,000)

The Navy expects to spend about $7,000,000 (or 3%) less than last year because of a 1,200 reduction in medical personnel.

Office, Assistant Secretary of Defense

(Health & Medical).......................... $104,500

(Last year: $ 87,500)

For salaries, travel, and administration of this office, and for travel expenses and consultant fees for the Defense Department Civilian Health and Medical Advisory Council.

VETERANS ADMINISTRATION

(This Year: $790,185,800—Last Year: $754,819,344)

Inpatient Care in VA Hospitals..............$615,869,000

(Last year: $567,974,991)

The VA's largest single medical appropriation covers inpatient care in 173 VA hospitals and provides for an average of 120,873 beds a day. At present VA reports daily patient load at 106,682, which is just under 90% of capacity. The appropriation includes salaries of physicians and other personnel, medical rehabilitation of veterans, dietetic and nursing services, social services, and special services, such as recreation and transportation of veterans.

Outpatient Care $85,471,200

(Last year: $83,130,222)

The bulk of this appropriation (about $66,509,000) is for outpatient care in 99 VA clinics. Of the remainder, $7,861,000 is earmarked for fees to physicians and $11,100,000 for dentists under the home town care program.

Modernization and Replacement Construction....$30,000,000

(Last year: $47,000,000)

This amount is for work on existing units costing over $250,000 a project and equipment for new units. The money is available until expended. It includes $2,900,000 for technical services in rehabilitating the Downey (Ill.) Hospital. (See Major Alterations, Improvements item for smaller projects.)

Domiciliary Care $23,062,500

(Last year: $22,279,217)

Domiciliary care is being provided in 17 VA facilities for about 17,000 veterans who, while incapacitated for employment, are not in need of full hospital care. The VA also makes payments to 32 state homes in 28 states with a daily patient load of around 8,700. Payments this fiscal year are estimated at $5,569,000 (under Public Law 613, 83rd Congress, federal contributions to these homes were raised from a maximum of $500 to $700 a year per patient).

Contract Hospitalization $15,237,300

(Last year: $15,239,143)

This appropriation finances an average daily patient load of 3,900 veterans in federal hospitals other than VA and in state and municipal hospitals. Patients in federal non-VA hospitals are estimated at 1,445 and in nonfederal hospitals 2,455. Psychotic cases make up the largest single category of contract cases.

Medical Administration and Miscellaneous
Operating Expenses $7,422,000

(Last year: $7,191,771)

To operate the VA Department of Medicine and Surgery in the Washington central office and the seven area medical offices; included are salaries, travel, and like expenses.

Medical Research $6,381,600

(Last year: $5,560,000)

For research, mostly in VA hospitals. The breakdown: general medical and surgical, $2,809,700; atomic medical research, $1,741,000; prostheses testing, $989,600; neuropsychiatric, $503,000; tuberculosis, $262,200; other, $76,100.

Major Alterations, Improvements, and Repairs....$3,900,000

(Last year: $3,480,000)

For alterations, improvements, and repairs to VA clinics and domiciliaries (costing less than $250,000 per project).

Supply Depot Operations $1,642,200

(Last year: $1,654,000)

For maintaining and operating supply depots handling the purchase, shipping, and storage of supplies and equipment used by the Department of Medicine and Surgery.

Medical Education and Training................$1,200,000

(Last year: $1,310,000)

For VA training programs for physicians and other VA personnel, in medical specialties and auxiliary services.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

(This Year: $526,935,400—Last Year: $399,180,500)

Division of Hospital Facilities................$112,250,000

(Last year: $ 97,445,000)

This division supervises both the regular and expanded Hill-Burton hospital clinic programs. The total appropriation is divided into the following four categories:

Hill-Burton Hospitals (Regular Program)........$88,800,000

(Last year: $75,000,000)

This appropriation, allotted to the states on the basis of population and per capita income, assists in the financing of new hospitals and related health facilities constructed under the regular Hill-Burton program. Since its initiation in 1946, federal funds have partially financed approximately 2,515 projects totaling nearly 119,000 hospital beds, and almost 550 public health centers. The federal share ranges from one-third to two-thirds of the total cost of the project, determined by the state and indirectly by the per capita wealth of each state.

Research (Regular Program)...................$1,200,000

(New category)

Authorized in 1949 but not appropriated until this year was this item for research, experiments, and demonstrations on utilization of hospital services, facilities, and resources. The bulk of the money is earmarked as grants to states, universities and hospitals, and a smaller amount for direct research by Public Health Service.

Medical Facilities (New Program).............$21,000,000

(Last year: $21,000,000)

The total allotted to the states on the population-per capita income formula will assist in the financing of new construction under the 1954 amendments in four categories as follows: $6,500,000 for hospitals for the chronically ill and impaired; $6,500,000 for diagnostic centers, or diagnostic and treatment centers; $4,000,000 for nursing homes; and $4,000,000 for rehabilitation facilities. As under the original program, the federal share may range from one-third to two-thirds of the total project cost. To aid states in surveying their needs there still remains available about $1,655,000 of the $2,000,000 voted last year. To date 35 states have received a total of $345,000 in survey money.

Hospital Construction Administrative Expenses....$1,250,000

(Last year: $1,100,000)

This appropriation is used for salaries and expenses for the hospital survey and construction program for Washington, D. C., and nine regional offices at the federal level.

National Institutes of Health..................$97,823,000

(Last year: $81,267,500)

The total for the Institutes is apportioned as follows:

National Cancer Institute....................$24,828,000

(Last year: $21,737,000)

About two-thirds of this appropriation is earmarked for grants to individual investigators and private institutions. States receive $2,250,000 for cancer control work. The balance is used for direct operations, salaries, supplies, and for this institute's share in the cost of operating the Bethesda (Md.) Clinical Center and related auxiliary services.

National Heart Institute......................$18,778,000

(Last year: $16,668,000)

Grants to individual investigators and public and private institutions take about two-thirds of the appropriation. The sum of $1,125,000 is allocated to states engaging in programs of heart disease control. The remainder supports direct operations, such as salaries, supplies, and support of the Clinical Center.

Mental Health Institute......................$18,001,000

(Last year: $14,147,500)

Approximately 60% of this appropriation is apportioned through grants to individual investigators and public and private institutions. The sum of $3,000,000 is allocated to the states for community mental health services. The remainder will support direct operations, such as salaries, expenses and share of operating the Clinical Center and related auxiliary research services.

Institute of Arthritis and Metabolic Diseases.....$10,740,000

(Last year: $ 8,270,000)

Grants to public and private investigators total $5,910,000. The remainder will support direct operations, such as salaries, supplies, and Clinical Center support.

Institute for Neurological Diseases and Blindness..$9,861,000

(Last year: $7,600,000)

Grants to public and private investigators and institutions total $6,300,000 or two-thirds. The remainder supports direct operations, such as salaries and supplies and supports the Clinical Center operating costs.

Microbiological Institute $7,580,000

(Last year: $6,180,000)

Research grants to public and private investigators amount to the same as last year: $2,227,000. The remainder partly finances direct research and other related services of the Institute, as well as poliomyelitis and other biologics control activities of the newly created division of biologics standards.

National Institutes of Health—General Funds.....$5,899,000

(Last year: $4,675,000)

These funds are administered by the division of research grants of the National Institutes of Health, with approximately 90% being expended in grants. The balance goes toward supporting fellowships and administrative expenses relating to grants.

Dental Health Institute......................$2,136,000

(Last year: $1,990,000)

This appropriation is divided as follows: (*a*) for research and fellowships, $521,000; (*b*) direct research at Bethesda, $764,000; (*c*) review and approval of research grants and fellowships, $12,000; (*d*) administration, $69,000; (*e*) technical assistance to states, $660,000; and (*f*) coordination and development of dental resources, $110,000.

Bureau of Public Assistance (Medical and Health Payments) ....Approx. $90,000,000

(Last year: $85,000,000)

An estimated $265,000,000 of federal, state and local funds is expected to be paid for medical and health needs of public assistance recipients this fiscal year. The U. S. share of this total is an estimated $90,000,000.

Indian Health Activities.....................$38,840,000

(New category)

Under Public Law 568 (83rd Congress), the PHS has assumed responsibility for health of American Indians and natives of Alaska, which formerly was a function of Interior Department. The total is broken down as follows: hospital care in Indian hospitals, $19,090,000; contract patient care, $8,113,000; field health services, $4,490,000; program direction and management services, $1,897,000; survey of needs, $250,000; construction of *hospitals, clinics, and quarters, $5,000,000.*

Office of Vocational Rehabilitation............$36,825,000

(Last year: $28,735,000)

Under the expanded vocational rehabilitation act (Public Law 565, 83rd Congress) Congress this year voted $33,750,000 for grants to states. This is divided as follows: (*a*) support of basic rehabilitation services including medical examinations, surgical and therapeutic treatment, hospitalization, prostheses, occupational tools and aids, vending stands, rehabilitation facilities, vocational training, and funds for maintenance (based on per capita income and populations as in Hill-Burton) $30,000,000; (*b*) extension and improvement of state programs, $1,500,000; (*c*) special projects (2-1 federal-state matching), $2,250,000. In addition, $2,075,000 is available for training of rehabilitation personnel, including physicians, therapists, psychologists, counselors, and medical and psychiatric social workers ($500,000 of which is on a 2-1 federal-state matching basis and $400,000 on no prescribed matching basis), and $1,000,000 for federal administrative costs.

Hospitals and Medical Care..................$34,326,000.

(Last year: $33,000,000)

These funds are used for operational cost and maintenance of PHS hospitals and health services in caring for American seamen, Coast Guard and Public Health Service personnel and their dependents, federal employees injured at work, patients with leprosy, and narcotic addicts; includes studies in the development and coordination of nursing resources. It also includes $1,000,000 for grants to Hawaii for care of patients suffering from leprosy.

Children's Bureau $35,796,600

(Last year: $31,600,000)

Operating under the Social Security Administration, the Children's Bureau administers grants to states for maternal and child health and crippled children's and child welfare services. This year grant money totals $34,156,000 divided as follows: $11,927,700 for maternal and child health work, with the states required to spend 50 cents for each federal dollar; $15,000,000 for crippled children's services, same matching requirement; and $7,228,900 for child welfare services, where the only matching requirement is that states must supply some money. In addition the Children's Bureau has $1,640,000 to finance investigating and reporting activities and to administer the grants.

Poliomyelitis Vaccine Program................$30,000,000

(New category)

Under Public Law 377, approved by Congress this year, a total of $30,000,000 is available to states on an outright grants basis for helping set up programs for vaccination of children under 20 and pregnant women against poliomyelitis. The sum of $25,000,000 is earmarked for purchase of vaccine and $5,000,000 for planning and conducting vaccination services or for buying vaccine.

Assistance to States—General..................$18,160,000

(Last year: $13,000,000)

Grants totaling $14,225,000 will be available for apportionment to the states in support of state and local general public health activities. Of this total, $4,500,000 is for assistance to states in administering poliomyelitis vaccine programs. These grants must be matched one state dollar for every two federal dollars. An additional $3,935,000 supports direct activities of the U. S. Public Health Service in providing technical assistance, consulting services to states, expenses of the National Office of Vital Statistics, international health activities, demonstrations, training activities, and operational expenses.

Food and Drug Administration.................$6,266,000

(Last year: $5,202,000)

For administering the Federal Food, Drug, and Cosmetic Act, Congress voted $6,266,000, including a $309,000 item for policing the distribution of the Salk poliomyelitis vaccine during this fiscal year.

Tuberculosis Control $6,000,000

(Last year: $6,000,000)

Grants to states for diagnostic and treatment clinics, mass case-finding, and follow-up services account for $4,500,000, all of which has to be matched equally by the states. The remainder, $1,500,000, finances PHS aid programs not itemized below.

Communicable Disease Control.................$5,250,000

(Last year: $4,300,000)

The entire appropriation is used for direct activity of the PHS Communicable Disease Center at Atlanta, Ga., and its affiliated operations, including $850,000 for work in poliomyelitis. It carries on studies in epidemiology, furnishes laboratory diagnostic services, and sponsors special projects to assist states.

Engineering, Sanitation, and Industrial Hygiene....$4,690,000

(Last year: $3,565,000)

Four programs are supported by this appropriation: (*a*) water supply and water pollution control through several river basin offices that work with state and interstate agency officials, $1,160,500; (*b*) study of effect of radioactive substances on individuals partially in cooperation with the Atomic Energy Commission, $275,000; (*c*) general sanitation, consultant services with states on milk and restaurant inspection, garbage disposal, food handling by interstate carriers, etc., $799,000; and (*d*) environmental research activities of Cincinnati office including air pollution work, $2,373,000. Another $82,500 is for administration.

Venereal Disease Control.....................$3,500,000

(Last year: $3,000,000)

Of the total, $1,200,000 goes for direct grants to states for venereal disease detection, treatment and control on a special need basis. Of the remainder, $2,300,000 is spent to finance technical assistance to the states, mostly to pay federal employees assigned to state health departments.

Foreign Quarantine Service.....................$3,000,000

(Last year: $2,900,000)

This service operates approximately 250 medical quarantine stations on borders of the United States. It also operates approximately 25 medical examination stations on foreign soil for the examination of aliens seeking visas to enter the United States. Inspections are made of all seagoing vessels and aircraft entering the United States.

Office of the Surgeon General..................$2,762,000

(Last year: $2,780,000)

For administrative expenses of this office, including all housekeeping services, evaluation of public health needs, and personnel training.

Alaska—Disease and Sanitation Investigations
and Control $1,125,000

(Last year: $1,125,000)

This appropriation will be divided as follows: $638,000 for grants to the territory for public health services and the remainder for research activities of the Arctic Health Research Center at Anchorage.

Reimbursable Health Program for Other
Governmental Agencies $321,800

(Last year: $261,000)

This represents the cost of services expected to be advanced by Public Health Service to other governmental agencies for establishing and operating on-the-job clinics. As a total, however, it is misleading, as a substantial number of government agencies carry on their own health programs independent of the PHS. The PHS deals largely with Washington personnel, whereas 90% of the government's employees are located outside of Washington.

FEDERAL CIVIL DEFENSE ADMINISTRATION

(This Year: $30,450,000—Last Year: $28,755,000)

Out of a FCDA budget of $56,350,000, the agency plans to spend the following: $28,500,000 for medical supplies and equipment wholly owned by the federal government, $1,700,000 for matching funds to the states to help them in medical supply stockpiling, and $250,000 for administering the two programs.

ATOMIC ENERGY COMMISSION

(This Year: $27,700,000—Last Year: $26,800,000)

The Atomic Energy Commission's appropriation for this year is $1,511,000,000. Out of this total, $27,700,000 is available to the division of biology and medicine for research projects. They include cancer, $2,651,000; other medical $8,629,000; biological, $9,839,000; biophysical, $5,307,000. Vocational and special training accounts for $474,000 and radioisotope distribution $800,000.

INTERNATIONAL COOPERATION ADMINISTRATION

(This Year: $25,441,000—Last Year: $31,137,900)

Technical Assistance Programs................$20,141,000

(Last year: $16,925,900)

Under the International Cooperation Administration, U. S. funds are given underdeveloped countries for training and demonstration aimed at eventually setting up national and local health services. The recipient nations, in turn, make varying contributions in cash, facilities, and services. The U. S. total is broken down as follows: Near East, Africa, and South Asia (15 countries), $5,211,000; Far East and Pacific (8 countries), $9,196,000; Latin America (22 countries), $5,734,000.

Development Assistance Program.............$ 5,300,000

(Last year: $14,212,000)

For emergency health programs, principally malaria control, the ICA has earmarked $4,000,000 for the Far East, $800,000 for Latin America and $500,000 for the Near East, South Asia, and Africa.

DEPARTMENT OF STATE

(This Year: $13,669,790—Last Year: $12,607,667)

United Nations Children's Fund................$9,000,000

(Last year: $8,300,000)

The U. S. share of the fund, formerly known as the International Children's Emergency Fund, is $9,000,000, or about 60% of anticipated contributions coming from some 65 countries. The fund in 1954 treated 1,500,000 children for yaws and vaccinated 13,000,000 against tuberculosis. Currently the fund is aiding about 250 health and medical projects for children in 92 countries and territories.

World Health Organization......................$3,349,790

(Last year: $2,987,667)

For the first time since 1950, U. S. share of WHO's total budget has gone above $3,000,000. Late in the first session of the 84th Congress, the Mutual Security Act was amended to remove the statutory ceiling of $3,000,000. Congress at the same time served notice that after calendar year 1958, the U. S. share cannot exceed one-third of the total assessments of active member countries. Currently U. S. is assessed one-third of all member nations, including nine Iron Curtain countries that make no contributions. WHO's membership now totals 85 countries, and last year the agency was sponsoring 329 health projects in 76 countries and territories. About 72% of the WHO budget is for operating programs, 10% for administration and salaries and the remainder for such items as expenses for holding meetings and to compensate for nonpayment by inactive countries.

Pan American Sanitary Bureau..................$1,320,000

(Last year: $1,320,000)

The Pan American Sanitary Bureau is the regional operating agency for WHO and currently is sponsoring health programs in 21 Latin American countries and the United States. The U. S. share is two-thirds of the bureau's $2,100,000 budget.

DEPARTMENT OF LABOR

(This Year: $7,336,000—Last Year: $7,171,857)

Bureau of Employees' Compensation.............$6,800,000

(Last year: $6,720,151)

Under the Federal Employees' Compensation Act, approximately 2,300,000 federal workers are eligible for payments for medical and hospital care, rehabilitation services, disability and death, and funeral and burial expenses. The Department has set aside $4,100,000 for treatment of employees by private physicians and hospitalization in private facilities, and another $2,700,000 for services in federal hospitals and clinics.

Bureau of Labor Standards......................$536,000

(Last year: $451,706)

The Bureau expects to spend about $400,000 for promotion of industrial safety and $136,000 for reemployment programs of the physically handicapped. The bureau develops standards for hazardous occupation, assists the states in accident prevention programs, and trains personnel for administration of such programs.

FEDERAL EMPLOYEES HEALTH PROGRAM

(This Year: approx. $6,000,000—Last Year: about $6,000,000)

Health clinics providing limited health services to federal workers are operated by agencies employing 300 or more persons in any one concentrated area. The program is designed to minimize illness and assist workers in remaining on the job. Maximum cost of a health service cannot exceed $11 a year per employee to be served, unless special industrial conditions or minimal size unit warrants a higher rate. Health services include treatment of on-the-job illnesses by a physician or nurse, preemployment and fitness-for-duty examinations, and treatment for illnesses or conditions for which a worker is under the care of a private physician who, in turn, requests that treatment be at the federal clinic.

DEPARTMENT OF THE INTERIOR

(This Year: $5,770,000—Last Year: $5,837,909)

Bureau of Mines...............................$5,000,000

(Last year: $5,035,189)

For preventive health and safety in the mines, the bureau expects to spend its $5,000,000 as follows: $3,645,000 for mine inspection and investigations; $850,000 for investigations of accidents and rescue work; $505,000 for explosives testing and research.

Office of Territories............................$770,000

(Last year: $802,720)

For contract hospitalization at Morningside Hospital, Portland, Ore., of Alaskans judged insane.

PANAMA CANAL ZONE

(This Year: $5,702,900—Last Year: $5,800,503)

For hospitalization and medical treatment of Panama Canal Zone government workers, their families and other residents of the zone, a total of $5,185,300 is scheduled for spending this year. Another $517,600 is earmarked for public health activities, including sanitation and the health director's office. The zone maintains four hospitals with a bed capacity of 1,287, as well as two district clinics and seven first-aid stations.

NATIONAL SCIENCE FOUNDATION

(This Year: $5,000,000—Last Year: $3,600,000)

Out of a total appropriation of $16,000,000, an estimated $5,000,000 is available for research grants in the biological and medical sciences. The foundation initiates and supports basic scientific research, evaluates research of government agencies, and correlates research programs of other agencies. Administrative costs are handled by a separate appropriation.

DEPARTMENT OF TREASURY

(This Year: $2,990,000—Last Year: $2,770,000)

The Bureau of Narcotics is charged by Congress with enforcement of the narcotic laws, including P. L. 729 (83rd Congress), the oral prescription law, and the suppression of illegal traffic in drugs. Approximately 90% of the $2,990,000 is spent for salaries of agents, staff, and other personnel.

DEPARTMENT OF JUSTICE

(This Year: $1,470,000—Last Year: $1,277,362)

The Bureau of Prisons has available $1,470,000 for medical and dental services to approximately 20,000 prisoners in 27 federal penal institutions. The bureau pays Public Health Service and private physicians for services that include psychiatric, surgical and dental treatment. Also in the total is $76,000 for fees to 220 part-time consultants in the various medical specialties.

FEDERAL TRADE COMMISSION

(This Year: about $1,000,000—Last Year: about $1,000,000)

The Federal Trade Commission expects to spend about $1,000,000 for research, testing, and compliance operations in the field of foods, drugs, cosmetics, and devices out of total budget of $4,262,500. A major function of the FTC is the safeguarding of life and health of the consuming public by preventing dissemination of false advertisements of various products.

CIVIL SERVICE COMMISSION

(This Year: about $382,600—Last Year: $350,000)

For operating the medical division of Civil Service Commission, including salaries of eight physicians in Washington and 11 in regional offices. The division has three basic functions: (*a*) to set up and review from time to time the physical standards for all civilian job classifications in the federal government, with emphasis on employment of the physically handicapped, (*b*) to supervise and adjudicate all claims for civilian employee retirement based on disability (currently running at about 8,000 cases a year) and (*c*) to set professional standards for employment of physicians and ancillary personnel in all federal agencies except VA's Bureau of Medicine and Surgery and commissioned personnel in the Armed Services and U. S. Public Health Service.

DEPARTMENT OF COMMERCE

(This Year: $277,586—Last Year: $299,733)

Civil Aeronautics Administration.................$223,486

(Last year: $256,333)

To carry out the Civil Aeronautics Administration program of flight safety, $180,253 is available for salaries and administrative expenses, and $43,233 for the CAA Medical Research Laboratory at Columbus, Ohio. Ten medical officers supervise the regular physical examinations required of both commercial and private pilots, with the pilots themselves paying the examining physicians directly. The CAA has 1,816 designated medical examiners in the United States and abroad for this work. They make approximately 175,000 examinations a year.

Bureau of Standards............................$54,100

(Last year: $43,400)

The bureau expects to spend about $450,000 in highly specialized medical research and testing for different agencies of government, but only $54,100 of the total will entail expenditure of Department of Commerce funds. In this category are projects on x-ray standards, radiological instrument evaluation, and dental materials.

NATIONAL ADVISORY COMMITTEE TO SELECTIVE SERVICE

(This Year: $180,000—Last Year: $147,444)

For administration and staff salaries at headquarters of the National Advisory Committee to Selective Service and its 51 state and territorial offices. The committee, headed by Dr. Howard A. Rusk of New York, advises the selective service system on deferments of physicians in residency training, in teaching positions, in essential laboratory and clinical research, and those needed to protect civilian health. Committee members are paid on a per diem basis.

PRESIDENT'S COMMITTEE FOR EMPLOYMENT OF PHYSICALLY HANDICAPPED

(This Year: $130,000—Last Year: $87,653)

This total is for promotion and education programs, generally among employers to encourage employment of the physically handicapped.

HEALTH RESOURCES ADVISORY COMMITTEE

(This Year: about $101,000—Last Year: $90,000)

For administration and staff salaries for the Health Resources Advisory Committee. The committee, which has the same membership as the Selective Service Advisory Committee, is charged with advising the director of the Office of Defense Mobilization on medical manpower and blood problems. Committee members are paid a per diem rate.

ANNUAL MEETING AT CHICAGO, JUNE 11-15, 1956

The Section secretaries of the American Medical Association met in Chicago recently with the Council on Scientific Assembly and made plans for the program of the Annual Meeting. The meeting will open Monday morning, June 11, with exhibits, motion pictures, television, and general lectures. Section meetings will be held Tuesday, Wednesday, and Thursday, June 12 to 14, while a program of special interest is being arranged for Friday morning. All activities will cease at noon on Friday, June 15.

The lecture program for each Section is in charge of the Section Secretary, with whom the prospective participant should correspond. The deadline for the submission of requests for Section papers is Dec. 15, 1955. Applicants for space in the Scientific Exhibit must submit their applications before Jan. 9, 1956, to the Section Representatives to the Scientific Exhibit or directly to the Council on Scientific Assembly at the A. M. A. headquarters. It is urged that applications be sent in as early as possible before the closing date.

Additional information concerning the scientific program may be obtained from the Secretary, Council on Scientific Assembly, American Medical Association, 535 N. Dearborn St., Chicago 10.

AWARD FOR A. M. A. ARCHIVES OF SURGERY

The A. M. A. *Archives of Surgery,* of which Dr. Waltman Walters has been the Chief Editor since 1940, has been selected as the recipient of the Honor Award of the American Medical Writers' Association for distinguished service in medical journalism in 1955. This is presented to the journal with a subscription of over 3,000 that is devoted to some specialty in medicine or medical science "for accuracy, clarity and conciseness of published articles, editorials and other material, and/or distinguished and meritorious service rendered by a United States or Canadian medical periodical."

The committee for review of the journals for the award is composed of Morris Fishbein, M.D., Chicago, formerly Editor, THE JOURNAL of the American Medical Association, chairman; Richard M. Hewitt, M.D., Rochester, Minn., assistant professor of medical literature, Mayo Foundation; and Dean F. Smiley, M.D., Chicago, editor, *Journal of Medical Education.* Dr. Waltman Walters, as Chief Editor, accepted the award on behalf of the A. M. A. *Archives of Surgery* at the meeting of the American Medical Writers' Association in St. Louis on Friday, Sept. 30.

COUNCIL ON INDUSTRIAL HEALTH

The following report has been approved for publication by the Council on Industrial Health and is a revision of the Council's previous publication titled "Standing Orders for Nurses in Industry."

CLARK D. BRIDGES, *Acting Secretary.*

GUIDING PRINCIPLES AND PROCEDURES FOR INDUSTRIAL NURSES

Introduction

The purpose of a health service in industry is to provide a program of positive health maintenance for the employees. This is accomplished through the application of preventive measures that strive to provide a safe and healthful work environment, medical services as required for emergency treatment of the ill or injured, supervision of the health status of the individual through

---

The committee in charge of the revision was composed of the following members: Jermyn F. McCahan, M.D., chairman of the committee, Division Medical Director of the Liberty Mutual Insurance Company, New York, representing the Committee on Interprofessional Relations, Council on Industrial Health; David H. Goldstein, M.D., Medical Director of the New York *Times,* New York, serving as a member-at-large; Bernard Hirsh, LL.B., Law Department of the American Medical Association, Chicago, representing the A. M. A.; Emmett B. Lamb, M.D., Medical Director of the International Harvester Company, Indianapolis, representing the Industrial Medical Association; Katherine A. Lembright, R.N., Assistant Executive Secretary of the Industrial Nurses Section of the American Nurses' Association, New York, representing the American Nurses' Association; Arthur F. Mangelsdorff, M.D., Assistant Medical Director of the American Cyanamid Company, Bound Brook, N. J., representing the American Academy of Occupational Medicine; Sara P. Wagner, R.N., Director of Nurses of the Standard Oil Company (N. J.), New York, representing the American Association of Industrial Nurses; and George F. Wilkins, M.D., Medical Director of the New England Telephone and Telegraph Company, Boston, serving as a member-at-large.

Source material regarding qualifications, functions, relationships, and standard procedures was supplied by the American Nurses' Association and the American Association of Industrial Nurses.

examination, counseling, and proper job placement; health education; observance of laws and health regulations; and similar services designed to maintain and improve the health and well-being of the worker. An effective industrial health program may require the services and skills of many professional people including the physician, nurse, industrial hygienist, sanitary engineer, safety engineer, and other specially trained persons. Working as a health team with a common objective, these specialists are able to accomplish such positive control over the work environment that many employees are undoubtedly safer at work than they are off the job. The physician is essential to the proper conduct of an industrial health program, and to him belongs the responsibility for its over-all direction. Although he is the only person qualified to correlate and interpret all of the facts relating to the worker and his individual health, he must rely upon the assistance of other professional persons, one of the most important of whom is the nurse. The value of the industrial nurse in the fulfillment of the objectives of an industrial health program is attested by the phenomenal growth of this specialized branch of nursing. The industrial nurse serves as an assistant to the physician in the plant and as his representative when he is away from the plant. She occupies the strategic position of a closer personal relationship to the employees than many of her co-workers on the health team. To most of the employees she is often the only visible evidence of in-plant health and medical service. This is not unusual because the vast majority of industrial nurses are engaged in single nurse dispensaries with the physician on an on-call or part-time basis. That this is a position of serious responsibility is unquestioned. The situation produces its own difficulties peculiar to industry.

Special qualifications are desirable for industrial nursing. The duties and relationships require careful, tactful discharge of nursing functions, while avoiding activities or acceptance of responsibilities that encroach upon the practice of medicine. Therefore, this committee sets forth its suggestions for (1) qualifications, functions, responsibilities, and relationships of industrial nurses and (2) standard procedures for first aid and nursing care in industrial practice. The committee has given due recognition to the fact that "industrial" nursing is also practiced in commercial establishments and in offices, as well as in industry. Other titles, possibly more accurately descriptive and appropriate in certain instances may be in use, such as "occupational" or "occupational health" nursing. For facility of expression, however, the term "industrial nurse" is retained in this report. Numerous references were consulted in the preparation of this report.[1]

Qualifications, Functions, Relationships, and Responsibilities of Industrial Nurses

QUALIFICATIONS

The industrial nurse should be a graduate of an accredited school of nursing, registered, and legally qualified to practice within the state where employed. She should be a person with good health, emotional stability, initiative, resourcefulness, sound judgment, and a sincere interest in people. It is essential that she possess thorough knowledge and skills in nursing principles and techniques, as well as knowledge of first aid for minor injuries and for serious emergencies. Experience in professional nursing in an industrial medical department, a public health agency, or the outpatient or emergency department of a hospital, and completion of special courses related to industrial nursing are highly desirable. Additional attributes include some knowledge of workmen's compensation laws and insurance, health and safety laws, occupational diseases, sanitation, counseling, educational methods, record keeping, and business practice. Where the nurse works under continuous and direct medical or nursing supervision there is less need for the nurse to act upon her own initiative, and consequently there may be less need for thorough prior special training and experience than is required of the nurse who works entirely alone most of the time. The latter situation is the type of health service most frequently in effect in industry.

FUNCTIONS

The functions of the industrial nurse will depend upon the policy of management as to the extent of the industrial health services and the composition and size of the professional staff. Where the nurse is the only person devoting full time to the health service, her functions may include: (1) maintaining the health service facilities, supplies, and equipment; (2) providing nursing care for employee illnesses and injuries as authorized by the physician-in-charge; (3) assisting the physician with health maintenance examinations, in such a manner as has been directed and approved by him; (4) participating in the health, safety, and sanitation programs; (5) participating in industrial welfare activities; (6) promoting health education and engaging in health counseling; (7) maintaining adequate records and reports of all services rendered (The nurse should not be so burdened with clerical duties that they interfere with the proper performance of her nursing functions.); and (8) maintaining familiarity with the work environment and its hazards through periodic plant tours.

RELATIONSHIPS

Medical Director.—The industrial nurse needs and should receive professional guidance and supervision from a qualified physician. Legal and ethical considerations require that a physician be given the responsibility for the direction of services relating directly to the health of employees. When the services of a full-time medical director are not feasible, management should adopt a physician-in-charge arrangement on a part-time, on call, per diem, or consultative basis. This supervision should be active (as opposed to passive), personal (not delegated), and definite (accepted responsibility), even if it consists only of periodic consultation with the nurse relative to routine nursing matters and on-call availability for those situations requiring medical service. The nurse should be provided with a set of standard procedures for her guidance during the physician's absence, which have been discussed and agreed upon in consultation with the nurse. These should be in writing and signed by the physician-in-charge.

---

[1] Recommended Qualifications . . . For a Professional Nurse Working Without Nursing Supervision in an Industrial Medical Service, New York, American Association of Industrial Nurses, 1955. Recommended Qualifications . . . For a Professional Nurse Working with Nursing Supervision in an Industrial Medical Service, New York, American Association of Industrial Nurses, 1955. Duties and Responsibilities . . . Of the Professional Nurse in an Industrial Medical Service, New York, American Association of Industrial Nurses, 1955. Management . . . And the Nurse—A Statement of Principles to Govern Management Relationships with the Industrial Nurse, New York, American Association of Industrial Nurses. Functions for an Industrial Charge Nurse in a One-Nurse Service in Industry or Commerce, New York, American Nurses' Association. Standard Procedures for Nurses In Industry, Boston, American Mutual Liability Insurance Company. Guiding Principles of Occupational Medicine, J. A. M. A. **155**: 364 (May 22) 1954. Essentials of Medical-Nursing Services in Industry, J. A. M. A. **149**: 597 (June 7) 1952. First Aid, Chicago, American Medical Association, 1952. Nursing Services in Industry, California Med. **79**: 258 (Sept.) 1953. Medical Directives for the Nurse in Industry, Indianapolis, Indiana State Medical Association. Guide for Industrial First-Aid Workers, Boston, Liberty Mutual Insurance Company.

Management.—The industrial nurse should report directly to the full-time physician or medical director. When a part-time or other physician-in-charge arrangement has been established, the nurse should report to the physician in all professional matters and to a member of management on administrative matters. The physician ordinarily will represent the health service in conferences with management; however, in the case of part-time medical services, provision should be made for the nurse to discuss certain nursing problems with management so that they may be resolved promptly and effectively. Management should be conversant with the scope and limitations involved in the practice of nursing and should neither expect nor request the nurse to exceed her normal sphere of service.

Employees.—The industrial nurse must at all times maintain a personal and confidential professional relationship with the employees, in conformity with legal and ethical codes. A friendly relationship should be maintained with employee organizations with a position of strict neutrality whenever matters of conflict with management arise. The nurse is in position to promote understanding and appreciation of the benefits of the health service to employees. Except where law dictates otherwise, the nurse should never divulge information in the individual employee health records unless the employee gives his signed permission. Medical records are always to be considered confidential and kept under lock and key in the health service department.

Community Physicians.—The nurse should exercise discretion in the handling of nonoccupational ailments. In-plant care must be in accord with directives of the physician-in-charge, followed by referral of the employee, when indicated, to his personal physician for further treatment. When the employee has no personal physician and requests referral to one, the nurse should request the plant physician to make recommendations or provide a referral list.

Community Services.—The industrial nurse should be familiar with the various official and voluntary health and welfare agencies in the community. Cooperative relationships should be developed and maintained so that proper referrals can be made as the need arises.

Professional Nursing Organizations.—It is desirable for the industrial nurse to maintain membership in local and national organizations devoted to professional nursing, to attend meetings, and to participate in special courses and other educational activities in order to keep abreast of the latest developments in the field of medical and nursing sciences.

RESPONSIBILITIES

Certain basic principles apply in delineating the responsibilities, prerogatives, and limitations involved in the physician-nurse relationship in industry. Personal medical services involving the establishment of a diagnosis and the definition of treatment or the performance of specific preventive measures are the function of the physician. It is the physician's responsibility to define procedures for the care of illness or injury and the nurse's responsibility to carry them out. The nurse should not be called upon to give service or to make decisions upon professional matters that do not fall within the field of her training and licensure.

When the nurse is serving as direct assistant to the physician, she may perform many procedures, some or all of which might not be permissible when working alone under indirect supervision. It is difficult to specify the various procedures that invariably require direct personal medical supervision and others that can invariably be performed under the indirect supervision of written medical directives. They are subject to such variables as precedents established through locally accepted practice, state medical and nursing practice acts, the training and experience of the nurse, availability and accessibility of physician, and other community medical services. When functioning under indirect supervision, the nurse must follow the medical directives or standard procedures prepared for her guidance by the physician-in-charge. Such directives should embrace the types of minor injuries and ailments that might be incurred by the employees in the industry and specify the kind of first aid or other treatment to be given, with the physician-in-charge available on-call. Such directives are not intended to be a substitute for medical care or to give the industrial nurse permission to practice medicine but are a realistic recognition of the fact that proper and careful attention by a professional nurse, with a physician available when needed, is much more to be desired than the common practice of self-medication or neglect of minor injuries and ailments when health services are not available.

In cases of sudden serious illness, or injury, the nurse should take such emergency first-aid measures as the situation demands until a physician has relieved her of further decisive responsibility. On her own initiative and responsibility, based on her special training and qualifications, the industrial nurse may engage in health counseling and education; participate in safety, hygiene, and welfare activities and environmental surveys; maintain the dispensary; supervise and train assistants, and keep records and other general details of routine health department procedures.

Legal Principles.—Management, physician, and nurse should be familiar with the laws regulating the practice of medicine and nursing in their state and also with professional liability and malpractice insurance coverages and limitations. Generally speaking, it is difficult to make a clear-cut distinction between those acts that must be performed by a licensed physician and those that may be delegated to a nurse. One primary rule is that a physician may not properly delegate to a nonphysician the performance of any function requiring the exercise of professional medical judgment. For example, he may delegate the duty of taking temperatures or of administering drugs at certain intervals, but he cannot employ a nurse to make a diagnosis for him or to prescribe a course of treatment. The physician is required to exercise professional judgment and discretion in making a diagnosis and prescribing treatment. The nurse, in carrying out the physician's orders is required to exercise professional ability and skill. The nurse must bear in mind at all times that she is required to perform duties assumed by her in a competent manner, and that she may be personally responsible for wrongful acts or negligence even if performed under the authority of a physician.

The industrial nurse should not rely on "standing orders," standard procedures, or medical directives from an on-call physician who has not been designated by management as the physician-in-charge of the in-plant medical service. The industrial nurse must strive constantly to retain the role of nurse, and should not accept employment that requires her to assume responsibility for service outside the sphere of her professional training and experience. Nor should management employ an industrial nurse for the performance of designated services without first investigating her qualifications and experience to perform those duties.

Standard Procedures for the Industrial Nurse

Both legal and ethical requirements make the term "standing orders" undesirable as a proper title for the written medical directives under which many of the duties of the industrial nurse are performed. There is considerable difference between the meaning of "standing orders" in hospital nursing and industrial nursing. In hospitals, standing orders are written (and signed) by a physician for a particular patient after the physician has seen the patient, made a diagnosis, and prescribed the treatment and nursing care to be given during his absence. To the graduate nurse, therefore the term has a specific meaning not directly applicable to industrial nursing. The nurse in industry functions under a set of procedures prescribed by the physician-in-charge governing her activities in the handling of emergency and routine situations with ill or injured individuals before they are seen by a physician.

Therefore, to eliminate the confusion of meaning, standing orders in industrial nursing will be replaced by some more suitable term, such as standard procedures or medical directives. It is probable that the near future will see the development and general acceptance of a satisfactory title. However, regardless of the title, it cannot be overemphasized that "standard procedures" should be prepared only by the physician-in-charge of the medical service, in consultation with the nurse; they must be in writing and signed by the physician. Standard procedures, after they have been established, should be readily accessible in the medical department and should include the telephone numbers and addresses of the physician-in-charge and other emergency numbers such as hospitals and ambulance services.

To facilitate adoption of standard procedures, the following basic suggestions are offered as a guide for the physician in the preparation of directives for a specific situation. Extra spaces may be provided at appropriate places to permit modification by insertion of preferred medication or treatment according to the desires of the physician-in-charge. Additional subjects may be included as desired in addendums. Space should be provided for signature and date at the bottom.

EMERGENCY PROCEDURES

In addition to the skills and experience associated with nursing, the industrial nurse will often find considerable need for training in emergency first aid. The basic training offered by the American Red Cross or the U. S. Bureau of Mines is excellent. It is recommended that industrial nurses qualify as first-aid instructors so that they may conduct or assist in training classes for the workers in their industry. The following general principles should apply in all emergency situations: (1) call a physician immediately, (2) stop bleeding, (3) restore breathing, (4) prevent shock and infection, and (5) do no more than is actually needed. The supervising physician should assure himself that these instructions are thoroughly understood and should institute special training when necessary.

Hemorrhage.—Excessive bleeding calls for immediate attention. The nurse should notify the physician and, until he arrives, proceed by (1) exposing the wound, (2) removing loose, surface foreign matter, and (3) applying pressure. Direct pressure firmly applied over sterile gauze at the bleeding site usually will effectively control moderate hemorrhage. Indirect compression is indicated in excessive bleeding not controllable by direct methods. Digital compression over the vessel against underlying structures either adjacent to the wound or at the nearest pressure point will usually suffice until the physician arrives. Indirect pressure should be applied proximal or distal to the wound, in keeping with the arterial or venous character of the bleeding. Hemostats or clamps should be applied only if the emergency warrants it and when the foregoing procedures prove ineffective. Avoid applying a tourniquet if possible. If severe bleeding in an extremity suggests the use of a tourniquet, apply a blood pressure cuff.

The nurse should remember that (1) a direct pressure bandage should not act as a tourniquet, (2) a tourniquet must be released every 15 minutes, (3) no dressing should be applied over a tourniquet, and (4) sterile precautions must be observed at all times.

Asphyxia.—Cessation of breathing from any cause demands (1) artificial respiration at once and at the site of the accident, (2) notification of the physician, and (3) maintenance of body warmth. Avoid excessive heating. All industrial nurses should possess the ability to apply artificial respiration and should realize the need for its continuous application until breathing is restored or until careful repeated medical examination advises otherwise.

Shock.—Early and adequate shock treatment is life-saving. Do not delay. Common symptoms of shock following injury are pallor, perspiration, and rapid thready pulse. Emergency management by the nurse should include the following procedures. 1. Notify the physician. 2. Remove the cause. If shock is due to hemorrhage, control it, and if it is due to trauma not associated with bleeding all active treatment of injury should be deferred until shock management has been instituted. Wounds should be covered with sterile dressings to prevent infection. 3. Relieve the pain with narcotics or barbiturates as ordered by the physician by telephone or written order. 4. Keep the patient warm, dry, and on his back with his head low.

Unconsciousness.—The usual signs of fainting are pallor, shallow breathing, and slow and weak pulse; periods of unconsciousness are of short duration. Keep the patient lying down with head lowered until fully recovered. Be sure patient has plenty of fresh air. Clothing should be loosened and stimulating inhalants used such as ammonia or smelling salts. If other signs are present or if unconsciousness persists longer than a few minutes, call for medical assistance. Give the patient nothing by mouth.

NURSING MANAGEMENT OF INJURIES

Successful management of injuries depends upon prompt treatment, meticulous cleansing and dressing, and examination of deep as well as of superficial structures. To accomplish these aims, the routine nursing procedure should be confined to the following care of minor wounds: (1) protection of wound with sterile gauze while adjacent area is cleansed with soap and water solvent or special detergents, (2) discarding of protective dressing and clean wound margins, and (3) irrigation of wound with sterile water or isotonic solution of sodium chloride or as advised by the physician, (4) application of antiseptic of physician's choice, and (5) application of sterile dressing, interfering as little as possible with function. Sterile dressings should be covered with protective material for use at work. The worker should be instructed not to remove the dressing but to return if it should become loosened or uncomfortable. Injuries most likely to be encountered in industry include the following conditions.

Abrasions.—Abrasions should be cleaned, and dry dressing should be applied. Extensive or deep loss of skin, especially about the fingers and hands, needs medical attention.

Contusions.—Contusions should be treated with cold compresses or cold soak directly following injury. After 24 hours change to heat. If soreness or disability persists or if deep involvement is suspected refer to the physician.

Lacerations.—Lacerations should be cleaned, and dressings should be applied as directed. Any possibility of injury to joints, nerves, or tendons should be brought to the physician's attention at once.

Puncture Wounds.—Puncture wounds through the skin need direct medical supervision to avoid severe infection. If superficial, the wounds should be cleaned, and sterile dressing should be applied.

Slivers and Splinters.—Penetration through the skin by slivers or splinters always carries the risk of an infected puncture wound and should be treated as such. Those lodged superficially and easily removed without added trauma or incision may be extracted aseptically by the nurse.

Burns and Scalds.—Clean minor burns with soap and water. Apply petrolatum or 5% boric acid ointment, bandaging firmly without interfering with function. Leave blisters alone. In all other cases the nurse should (1) notify the physician, (2) cover the burned area with a sterile dressing or sheet moistened with isotonic solution of sodium chloride or 5% sodium bicarbonate solution, and (3) combat pain and shock.

Chemical Burns.—Chemical burns should be treated by irrigation or immersion in water for at least 20 minutes, and then dressing should be applied.

Sprains and Strain.—Sprains and strains should be treated first with cold compresses, elevation of the part, and rest. A physician's advice is necessary regarding strapping, other methods of support or fixation, further examination, or special therapy.

Fractures.—Preliminary steps for the nurse in regard to fractures involve: (1) call a physician at once, (2) keep the patient quiet and warm, (3) immobilize before any movement is attempted. (Special instruction in splinting should be provided for every industrial nurse), (4) do not attempt reduction, and (5) if the fracture is compounded, cover the site of the fracture with a dry sterile dressing. Do not cleanse or reduce.

Eye Injuries.—No patient with an eye injury should be discharged without examination by a physician. The greatest care must be exercised in maintaining the sterility of solutions and medications for use in the eye. These should be changed frequently. Never attend consecutive patients without sterilization of instruments and careful hand washing before and after treatment. Remember that early symptoms of infection can simulate foreign body.

Foreign Bodies: The nurse should attempt to remove only those foreign bodies of the eye that can be readily located and easily washed out or removed with a moist sterile cotton applicator. An antiseptic may be applied if the physician so orders. Corneal foreign bodies should always be referred to a physician. The nurse should make sure the patient has completely recovered and is symptom-free. Direct medical care is essential (1) if the foreign body cannot readily be located, stains to aid in the location of foreign bodies should be used only on specific medical order, (2) if removal requires any instrumentation, and (3) if irritation or pain persists after removal.

Conjunctivitis: Conjunctivitis or other forms of conjunctival irritation should be referred routinely to the physician or ophthalmologist.

Minor Burns: Do not apply ointments to minor burns of the skin about the eye. Apply a sterile dressing and refer the patient to the physician.

Chemical Burns: Irrigate chemical burns of the eye copiously and at once with water preferably by continuous irrigation. The promptness with which the irrigation occurs is most important. Continue to irrigate at least 20 minutes by the clock. In the meantime arrange for prompt medical attention.

Hot Metal Burns: Apply a sterile pad and refer at once to the physician. Do not irrigate. An anesthetic should be applied as ordered by the physician.

"Flash Injury": Persistent pain following flash needs medical examination and treatment. First-aid treatment should include (1) local anesthetic as ordered by physician, (2) cold compresses, and (3) sedatives.

Head Injuries.—Until the physician assumes charge the nurse should (1) keep the patient lying down, (2) elevate the head, (3) apply ice cap or cold compress, (4) do not give sedatives, (5) record pulse, blood pressure, and respiration every 10 minutes, and (6) clip or shave and cleanse areas adjacent to scalp lacerations and cover with a sterile pad.

Chest and Abdominal Injuries.—Contusions of the chest and abdomen with or without external evidence of injury may result in trauma to underlying organs. Until seen by the physician, such patients must (1) be kept warm and quiet, (2) be allowed no sedative, (3) have pulse, blood pressure, temperature, and respiration recorded frequently, (4) be suitably bandaged to avoid contamination, and (5) be given nothing by mouth in event of abdominal injury.

NURSING MANAGEMENT OF MINOR ILLNESSES AND SYMPTOMS

The complaints most commonly encountered in industry are noted below with suggested procedure. Persistent or recurring symptoms of irritation, discomfort, or disability may suggest faulty work environment. The nurse should not hesitate to request medical examination of workers and of the premises.

Fever.—An elevation in body temperature of one degree or more suggests the need for medical consultation before work is resumed. The temperature elevation should be verified by repeated thermometer readings.

Headache.—The nurse should record temperature when the patient has a headache. If headache is accompanied by dizziness, nausea, vomiting, stiff neck, injury, history of recurrence, fever, general malaise, or other symptoms, the patient needs medical attention. If not accompanied by other symptoms, give an analgesic as ordered by the physician. Remember that headache or dizziness may be a premonitory sign of other illness.

Earache.—Any earache that persists for even a short time should be seen by a doctor. Pain can often be relieved by a hot water bag. Cold applications will give relief, sometimes, if heat fails. Foreign bodies should be removed by the physician. Do not put drops in ear.

Toothache.—If there is a cavity, the nurse may pack it with cotton dipped in oil of cloves for temporary relief. An analgesic as ordered by the physician may be given. For further examination and treatment the patient should be referred to a dentist.

Nosebleed.—Spontaneous nosebleed may be treated by cold packs or pinching the sides of the nose against the septum. Keep the patient sitting erect or standing, and loosen the collar if it tends to constrict the neck. Advise the patient not to breathe or blow through the nose for an hour or two after bleeding has stopped. Bear in mind that certain occupational exposures are manifested by nasal damage and bleeding.

Sore Throat.—Patients with sore throat may be given a hot saline solution gargle if they have a normal temperature. Do not "paint" the throat. Any persistent sore throat or one associated with fever needs medical care at home, and the patient should be advised to consult his personal physician.

Respiratory Irritation or Infection.—Repeated or persistent signs of bronchial or chest irritation without associated infection may be the result of unfavorable occupational exposure or nonoccupational allergy. The industrial environment may require thorough investigation. Persons having acute respiratory involvement with elevated temperature, cough, sneezing, or nasal discharge should be sent home for proper segregation, rest, and medical attention. With mild infections, the patient may continue to work under medical or nursing supervision. Simple measures frequently will control symptoms and prevent spread. Available medical evidence at the present time cannot support routine administration of cold vaccines or vitamin preparations as methods of reducing the incidence or severity of acute respiratory infections. Frequent colds or chronic respiratory conditions in the same individual require special consideration.

Abdominal Distress.—Abdominal distress, nausea, or pain, especially if severe or persistent, requires competent medical diagnosis and management. Early signs of occupational poisoning may also be abdominal in character. Laxatives should be dispensed only on specific order of the physician-in-charge.

Dysmenorrhea.—Painful menstruation not associated with fever or gastrointestinal disturbances may be treated with an analgesic ordered by the physician and the patient placed at rest with heat to the lower part of the abdomen. If there is no relief or if other signs or symptoms present themselves, she should be referred to her personal physician. Patients with recurrent dysmenorrhea should not be given palliative treatment. They should be referred to their personal physician for medical examination and treatment.

Pregnancy.—A definite procedure regarding employment during pregnancy should embrace the following recommendations. 1. The employee should notify the nurse promptly about her pregnancy, as the first trimester is a most hazardous period of pregnancy. 2. She should obtain a statement from her attending physician (*a*) that her work is not contraindicated and (*b*) regarding the length of time she should work. 3. Special attention should be given to the nature of the work. Pulling, pushing and lifting must be kept within safe limits. Rest periods will tend to minimize emotional and physical instability during pregnancy. 4. The physician-in-charge should become informed regarding the pregnant employee's health status and her attending physician's opinion, with the final decision relative to the employee's work status resting with the industrial physician. 5. Ordinarily work should stop six to eight weeks before term. If contraindications arise prior to this time, the work should be terminated immediately. 6. Return to work is inadvisable earlier than six weeks after delivery and then only if delivery was uncomplicated, if the attending physician has given written permission, and if the industrial physician concurs.

Heart Attack.—Cases resembling fainting—weak pulse, pallor of face, conscious or unconscious, possibly with associated pain in region of heart—may be distinguished from fainting by failure to recover rapidly. Other cases are characterized by violent, agonizing pain in the region of the heart and by great fear. Still other cases are marked by shortness of breath, red face, and difficulty in breathing.

First-Aid Treatment.—First-aid treatment consists of (1) keeping the person absolutely quiet, (2) keeping him lying down unless breathing is difficult, (3) keeping him comfortably warm, (4) giving no liquids, (5) calling a doctor immediately, and (6) giving oxygen and morphine as ordered by the physician.

Electric Shock.—The immediate danger of an electric shock lies in the fact that the heart action may be greatly depressed and respiration arrested. This is due to the action on the autonomic nervous system. Severe local burns may result at the points of contact. The cardiac and pulmonary functions are of primary importance, and the burns may be ignored until these functions are reestablished. If no pulse can be felt nor heartbeat heard (1) call the physician immediately, (2) start artificial respiration and continue until normal heart and respiratory functions are established or until advised by the physician that further effort is not indicated, and (3) after resumption of cardiac function and respiration, treat the burns as directed. The electric burn will frequently penetrate deeply, and tissue destruction usually is greater than the surface of the burn suggests.

Epileptic Seizure.—Treatment for an epileptic seizure consists essentially in protecting the patient from injury. Place a gag between the teeth to protect tongue. Use a small piece of wood, well wrapped with gauze or clean cloth, and insert in the mouth with care. Avoid being bitten by the patient, as human bites may cause severe infection. Place a pillow under the head to protect from injury. Do not attempt to hold patient still but remove surrounding objects to prevent injury. Give the patient nothing by mouth and refer him to a physician.

Heat Cramps.—Heat cramps are caused by loss of salt with prolonged heavy sweating. Severe pains may occur in the abdomen or limbs. Manual pressure on the cramped muscle gives some immediate relief. Give first aid as for cases of heat exhaustion. Medical consideration should be directed to prevent occurrence of heat cramps by use of salt tablets with drinking water during the day.

Heat Exhaustion.—Symptoms are dizziness, nausea and vomiting, pale face, clammy perspiration, weakness, and slow pulse. The person looks like one who has fainted and should be treated similarly by (1) giving the patient plenty of fresh air, (2) having patient lie down in cool place with head lowered and clothing loosened, (3) giving the patient aromatic spirits of ammonia (one teaspoonful to one-half glass of warm water) if he is conscious (do not force anything into mouth of an unconscious patient as he may choke to death), and (4) calling a physician if symptoms do not quickly disappear.

Heat Stroke or Sun Stroke.—Symptoms and signs of heat stroke or sun stroke are pain in head, dizziness, dryness of mouth, hot dry skin, flushed face, rapid pulse, and fever. The patient may be unconscious. Treatment includes (1) removing the patient to a cool place, (2) placing patient on back with raised head, (3) calling physician, (4) applying cold compresses to the head, and (5) cooling body with wet sheets, fan, or cold water. Give no stimulants.

Dermatitis.—Most skin diseases occurring in industrial employment are true contact dermatoses; however, not all eruptions arising in workers result from the employment. Many cases are caused by substances contacted outside of working hours. In cases of skin disease that are suspicious of being contact in origin, arrangements should be made for prompt examination by the physician. The treatment of nonoccupational skin disease is not the function of an industrial medical department. Any therapy by the nurse of occupationally incurred skin disease and injuries should be limited to the carrying out of instructions by the physician. Minor skin injuries should be treated promptly and adequately to prevent subsequent infection. The use of sulfonamides, penicillin, and the local anesthetics should be avoided in order to prevent contact dermatitis produced by overzealous treatment.

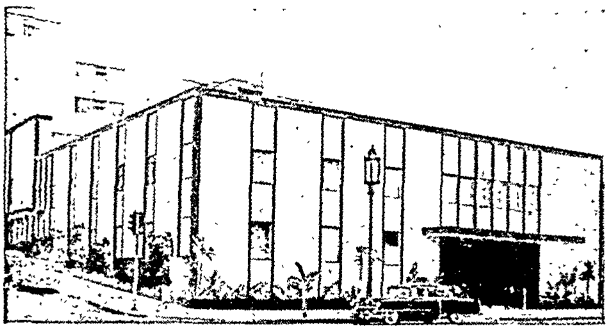
The alleviation of itching, burning, and redness should be exercised only by the use of soothing applications. Proprietary compounds should be avoided except for those recommended by the attending physician or dermatologist. A dermatological consultant or an experienced industrial physician should be consulted in the selection of stock therapeutic materials to be applied to the skin.

MEDICAL NEWS

CALIFORNIA

District Health Officers Needed.—Positions are available in Los Angeles City for physicians with training and experience in public health administration (salary range: $8,580-$10,668). A California license to practice medicine is required. For information, contact: Dr. George M. Uhl, Health Officer, Los Angeles City Health Department, 111 E. First St., Los Angeles 12.

New Headquarters for County Association.—The Los Angeles County Medical Association recently dedicated its new headquarters building at 1925 Wilshire Blvd. The dedication address was delivered by Dr. Walter B. Martin, Norfolk, Va., at that time President of the American Medical Association. Dr. Ewing L. Turner, president of the Los Angeles association, acted as master of ceremonies. The association, which was founded by seven physicians on Jan. 1, 1871, in a room at the rear of Wollweber's drugstore, has grown to a membership of 6,400 and a staff of 45. The new $300,000 structure includes an auditorium with seating accommodations for over 300; several smaller meeting rooms; dining room, coffee shop, and bar; numerous offices; and a library that contains 63,000 volumes, houses an estimated $100,000 worth of rare medical publications, and costs $50,000 a year to maintain.



Los Angeles County Medical Association.

Conference on Air Pollution.—The first annual meeting of the Southern California Conference on the Elimination of Air Pollution will convene Nov. 10 at the Ambassador Hotel, Los Angeles. The conference, open to the public, is cosponsored by the Los Angeles County Board of Supervisors, the independent Air Pollution Foundation, the California State Chamber of Commerce, and the Los Angeles County Air Pollution Control District. Officials of federal, state, and county government will describe activities of their agencies, while industry will be represented by officers of petroleum, metals, public utility, and automotive firms. At the end of each session, a press panel will interrogate the participants. Reservations for the conference may be obtained from the California State Chamber of Commerce, 1000 Wilshire Blvd., Los Angeles. A registration fee of $5 will cover costs and include the luncheon.

CONNECTICUT

Fellowship in Physical Medicine.—A three year fellowship in physical medicine is available in an A. M. A.-approved program at the Grace-New Haven Hospital and Yale University School of Medicine, New Haven. For information, write to Dr. Thomas F. Hines, Director, Department of Physical Medicine and Rehabilitation, 789 Howard Ave., New Haven.

Conference on Physicians and Schools.—The first Connecticut Conference on Physicians and Schools will be sponsored by the Connecticut State Medical Society Nov. 9, 2 p. m., at the Hamden High School in Hamden. Guests will include Dr. Oliver L. Stringfield, Stamford, president, Connecticut State Medical Society; Finis E. Engleman, Ed.D., Connecticut state commissioner of education; Dr. Stanley H. Osborn, Hartford, Connecticut state commissioner of health; Fred V. Hein, Ph.D., Chicago, consultant on school health, American Medical Association; and Dr. Charles C. Wilson, New Haven, professor of education and public health, Yale University.

Guest Speakers at Hartford Hospital.—In its guest speaker program, Saturdays, 11 a. m., the Hartford Hospital presents Dr. George J. Thomas, chief of anesthesiology, St. Francis Hospital, Pittsburgh, who will discuss "Fires and Explosions" Nov. 5; Dr. Paul A. Younge, associate professor of obstetrics and gynecology, Harvard Medical School, Boston, and Free Hospital for Women, Brookline, Mass., "Pathology and Treatment of CA in Situ (Cervix)" and "General Aspects of CA in Situ (Cervix)" Nov. 12; Dr. Garfield G. Duncan, professor of medicine, Jefferson Medical College of Philadelphia, chief, medical division of the Pennsylvania Hospital, "Practical Aspects of Diabetic Management" Nov. 19; and Mr. Gordon L. Burke, U. S. Army, foreign service officer (retired), "Chinese Hygiene, Habits, and Customs" Nov. 26.

ILLINOIS

Cancer Conference.—The ninth annual conference of the Illinois division, American Cancer Society, will convene Nov. 10-11 at the Conrad Hilton Hotel, Chicago. Harry M. Weaver, Ph.D., administrator for research of the national society, will deliver an address, "Frontiers of Science." Mr. Fred K. Hoehler, Chicago, former state director of welfare, now serving as city coordinator of studies, surveys, system, procedure, and personnel, will have as his topic "Understanding the Volunteer." On Friday, physician delegates attending the conference are invited to attend a special professional program arranged by Dr. Walter G. Maddock, Elcock Professor of Surgery, Northwestern University Medical School, Chicago.

Chicago

Residency in Allergy.—A residency in allergy is available at the Veterans Administration Hospital (North Side). This residency, which combines the veterans hospital service with the facilities in allergy at Northwestern University Medical School, is approved by the Board of Internal Medicine and the Subspecialty Board of Allergy. For information write to Dr. Samuel M. Feinberg, 303 E. Chicago Ave., Chicago 11.

Monthly Cardiac Conference.—The monthly clinicopathological cardiac conference of Cook County Hospital will be held Nov. 11 from 11 a. m. to 12 noon at an open meeting in the Children's Amphitheater, 700 S. Wood St. "Experimental Studies in the Production of Vascular Lesions" will be presented by the guest speaker Dr. George M. Hass, professor of pathology, University of Illinois School of Medicine, and director, pathology department, Presbyterian Hospital.

Workshop for Industrial Nurses.—A workshop for nurses in industry will be sponsored by the Chicago Heart Association Nov. 10 at the Morrison Hotel. Physicians participating in the program will include: Dr. Oglesby Paul, clinical associate professor of medicine, University of Illinois College of Medicine (Coronary Heart Disease—Our Public Enemy); Dr. Eugene L. Walsh, medical director, International Harvester Company (Medico-Legal Aspects of Recent Changes in Workmen's Compensation as They Affect the Cardiac Worker); and Dr. Egbert H. Fell, clinical professor of surgery, University of Illinois College of Medicine (Heart Surgery for Adults).

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

KANSAS

Society News.—At its meeting in Kansas City Nov. 8, the Kansas State Obstetrical Society will have as guest speaker Dr. Lawrence M. Randall, Rochester, Minn. Members are invited to bring their wives to the dinner session.

Dr. Bayles Goes to Baylor.—Dr. Spencer Bayles, assistant professor of medicine and of psychiatry, Kansas University Medical Center, Kansas City, and head of the section of psychosomatic medicine of the department of medicine since June 15, 1953, has been appointed a member of the faculty of Baylor University College of Medicine, Houston, Texas.

LOUISIANA

Society News.—Dr. James D. Hardy, chairman, department of surgery, University of Mississippi Medical Center, Jackson, will address the Louisiana Surgical Association in New Orleans, Nov. 6, on "The Management of Preoperative and Postoperative Fluid and Electrolyte Disturbances."——At the recent annual meeting of the Radiological Society of Louisiana, the following officers were elected: Dr. Granville M. Riley, Shreveport, president; Dr. Manuel M. Garcia, New Orleans, vice-president; and Dr. William S. Neal, New Orleans, secretary-treasurer.

MASSACHUSETTS

School Health Program.—The fall meeting of the Massachusetts School Physicians' Association will be held in Newton Nov. 9, 2-4 p. m. A demonstration of "The School Health Program in Newton" will be presented under the direction of Dr. Henry W. Godfrey, commissioner of public health, and Miss Elizabeth Miller, R.N., supervisor of public health services, city of Newton, at the Newton City Hall, 1000 Center St., Newton Center.

Personal.—Dr. Fuller Albright, Boston, was recently chosen the Upjohn Scholar of the Endocrine Society for 1955. He will spend the year visiting and working in laboratories and clinics in Europe.——Dr. Edward A. Edwards, assistant clinical professor of anatomy, Harvard Medical School, recently addressed the sixth annual Congress of the International Federation of Anatomists in Paris. His paper, "Occlusion Patterns and Collaterals in Arteriosclerosis of the Lower Aorta and Iliac Arteries," reported on research by Dr. Edwards and Dr. Marjorie J. LeMay, chief of the diagnostic service, department of radiology, Boston Veterans Administration Hospital.——Dr. David G. Cogan, director, Howe Laboratory of Ophthalmology, Harvard Medical School and the Massachusetts Eye and Ear Infirmary in Boston, has been appointed to the National Advisory Neurological Diseases and Blindness Council.——Dr. Hugo W. Moser, Boston, postgraduate investigator in internal medicine and biochemistry at the graduate school of arts and sciences, Harvard University, has been appointed the first research fellow of the National Multiple Sclerosis Society. Dr. Moser was previously affiliated with the Columbia-Presbyterian Medical Center, New York, and Peter Bent Brigham Hospital, Boston.

MICHIGAN

Lecture by Dr. Best.—The Wayne County Medical Society will have as speaker Nov. 7 Dr. Charles H. Best, Toronto, Canada, whose topic will be "The History and Present Knowledge of Insulin."

Child Research Center.—The Child Research Center of Michigan, successor in some respects to the Children's Fund of Michigan, has announced a new research program for children's health and welfare. The institution will be concerned with all phases of child research "in the interests of mental, physical, and social wellbeing." National and local philanthropic organizations are providing grants for scientific investigations. Other medical institutions are lending their support to the program. The Children's Fund of Michigan, established in 1929 by the late Senator Couzens, was disbanded after completing its 25 year task last year and spending 25 million dollars. Its research equipment has been turned over to the Child Research Center. Dr. Wolfgang W. Zuelzer, professor of pediatric research at Wayne University College of Medicine and director of laboratories of Children's Hospital, Detroit, is director of the center.

MISSISSIPPI

Society News.—The Mississippi Society of Anesthesiologists named as their 1955-56 officers Drs. Curtis W. Caine, Jackson, president; Happy L. Gee, Jackson, vice-president; Thomas J. Marland, Jackson, secretary-treasurer; and Henry N. Westhafer, Vicksburg, president-elect. The Mississippi chapter, American College of Chest Physicians, chose Drs. Lee R. Reid, president; Hans K. Stauss, vice-president; and Helen C. Bernfield, secretary; all of Jackson. Each society has announced plans for 1956 meetings concurrent with the centennial annual meeting of the association.

NEBRASKA

Carey Memorial Lecture.—The Eben J. Carey Memorial Lecture, sponsored by Creighton University and the Phi Chi Medical Fraternity, will be delivered by Dr. Edmund A. Smolik, professor of surgery, St. Louis University School of Medicine, at 8 p. m. Nov. 7, at St. Joseph's Hospital, Omaha, on "Hematological Alterations in Cerebral Trauma."

NEW YORK

General Practice Meetings.—The sixth annual scientific session of the Nassau County chapter of the American Academy of General Practice will open at the Garden City Hotel, Garden City, Nov. 9 at 10 a. m. Dr. Arthur M. Master, New York City, will discuss the treatment of acute coronary occlusion; Dr. Samuel Karelitz, New York City, infectious diseases; and John C. Krantz Jr., Ph.D., professor of pharmacology at the University of Maryland School of Medicine, Baltimore, pharmacology in medicine. During the afternoon Dr. Robert B. Greenblatt, Augusta, Ga., will consider recent advances in endocrinology; Dr. William H. Sebrell Jr., New York City, recent advances in nutrition; and Dr. Joseph J. Bunim, Bethesda, Md., will speak on recent advances in therapy and rheumatoid arthritis.——The capital district chapter of the Academy of General Practice will meet Nov. 10 at Glenridge Sanatorium, Schenectady. Dr. Robert E. Plunkett, Albany, assistant commissioner, Health Department of the State of New York, will serve as moderator. The session will open at 10:30 a. m. with "General Hospital Admission X-Rays" by Dr. James M. Blake, director, Glenridge Sanatorium, Schenectady, followed by "Fungus Disease of the Lung" by Dr. James Monroe, assistant director, Ray Brook State Tuberculosis Hospital, Ray Brook, and "Out-Patient Treatment of Tuberculosis" by Dr. Frances S. Lansdown, New York City. After luncheon "Chronic Nontuberculous Lung Disease" will be considered by Dr. Donald S. King, Hanover, N. H. At 2:30 p. m. Dr. James Blake will moderate a panel presentation, "Present Concepts of Antibiotics and Surgical Treatment of Tuberculosis."

New York City

Elsberg Lecture.—Dr. E. Jefferson Browder, professor of neurosurgery, State University of New York College of Medicine at New York City, Brooklyn, will deliver the annual Charles A. Elsberg Lecture (established by the New York Society of Neurosurgery) Nov. 15, 8:30 p. m., at the New York Academy of Medicine, 2 E. 103rd St., on "Dysfunction of the Brain Consequent to Traumatic Intracranial Hemorrhage."

Chandler Lecture.—The Chandler Lecture, "The Isolation and Proof of Structure of the Vasopressins and the Synthesis of Octapeptide Amides with Pressor-Antidiuretic Activity," will be delivered at a dinner meeting at the Men's Faculty Club of Columbia University Nov. 9 by Vincent du Vigneaud, Ph.D., professor of biochemistry, Cornell University Medical College. Dr. du Vigneaud will at that time receive the Chandler medal in recognition of his contributions to biochemistry.

Meeting on Cancer.—The New York Cancer Society will hold its second meeting (1955-1956) Nov. 9, 8:30 p. m., in Hosack Hall, New York Academy of Medicine (Fifth Avenue at 103rd Street). "Current Concepts in Treatment of Cancer of Tongue" will be discussed by Dr. Danely P. Slaughter, Chicago, director, Tumor Clinic, Research and Educational Hospitals, and associate professor of surgery, University of Illinois College of

Medicine, who will consider the surgical aspects, and Sir Stanford Cade, C.B., F.R.C.S., attending surgeon, Westminster Hospital, London, England, who will speak on radiotherapy. Physicians and medical students are cordially invited.

OHIO

Cancer Symposium.—The second annual cancer symposium will be presented Nov. 9 at the Dayton Biltmore Hotel, Dayton, under the sponsorship of the Montgomery County Society of Cancer Clinic, Montgomery County Medical Society, and District No. 2 Academy of General Practice. Round-table discussions will be on skin cancer, palliative x-ray in cancer, lesions of the vulva, malignant tumors in children, bronchogenic carcinoma, and bladder tumors. A social hour and banquet will precede the evening meeting at which "Diagnosis and Treatment of Palpable Abdominal Tumors in Children" will be presented by Dr. C. Marshall Lee, University of Cincinnati College of Medicine.

OREGON

Personal.—Dr. M. Harlan Cloud, Uniontown, has been appointed Fayette County medical director. Dr. Cloud served in World War I and was with the armed forces from March, 1941, to February, 1946, in Australia and New Guinea.

State Medical Election.—At the annual meeting of the Oregon State Medical Society, Dr. Eldon G. Chuinard, Portland, was installed as president and Dr. Russell H. Kaufman, Portland, was chosen president-elect; Dr. William T. Pollard, Junction City, first vice-president; Dr. Clarence L. Gilstrap, La Grande, second vice-president; Dr. Almon D. Blanchat, Lebanon, third vice-president; Dr. Richard R. Carter, Portland, secretary (reelected); and Dr. Max H. Parrott, Portland, treasurer (reelected).

University News.—Gifts and grants amounting to $91,408 were received at the University of Oregon Medical School, Portland, from July 11 through July 29. These include $25,000 from the Atomic Energy Commission to be used by Dr. Edwin E. Osgood, head, division of experimental medicine, for continuation of a study on the effects of radioisotopes, x-rays, and adrenocortical hormones on the blood and $15,000 from the Damon Runyon Memorial Fund for Cancer Research in support of a research program in malignant melanoma under the direction of Dr. Thomas B. Fitzpatrick and Howard S. Mason, Ph.D., of the dermatology division.——Faculty appointees at the University of Oregon Medical School, Portland, include Drs. Remy W. Fulsher and Richard W. Franklin, clinical instructors in obstetrics and gynecology; Dr. William R. Haas, assistant clinical professor of medicine; Dr. Sheldon A. Walker, associate clinical professor of dermatology and syphilology; Dr. Donald E. Tatum, clinical instructor in medicine; Drs. Peter DeWitt and William M. Garnjobst, clinical instructors in surgery; Drs. Edward L. Hendricks and Brace I. Knapp, clinical instructors in pediatrics; Dr. James H. Austin, associate in neurology; Dr. Eggert T. Feldsted, assistant professor of radiology; and Dr. Donald M. Pitcairn, instructor in medicine.

PENNSYLVANIA

Society News.—The Pittsburgh Roentgen Society recently elected Dr. Joseph E. Malia, Pittsburgh, president; Dr. Erwin Beck, Pittsburgh, vice-president; Dr. Norman B. Tannehill, Pittsburgh, secretary; and Dr. Harrison H. Richardson, Rochester, as treasurer.——The first meeting of the Industrial Medical Association of Pittsburgh, newly formed component society of the Industrial Medical Association, was held at Mellon Institute May 13. The local section includes the tristate area of western Pennsylvania, eastern Ohio, and West Virginia. Dr. J. Huber Wagner, chief surgeon, United States Steel Company, president of the association, opened the program. Topics discussed included medical problems in the steel and glass industries, clinical laboratory methods, the relationship of hypertension to industry, and ventricular fibrillation following exposure to the common solvents.

Philadelphia

New Director of Phipps Institute.—Dr. Julius Lane Wilson, director of clinics at the Henry Phipps Institute and professor of medicine, University of Pennsylvania School of Medicine, has been appointed director of the institute to succeed Dr. Esmond R. Long, who retired July 1. Dr. Wilson was medical director of the Ochsner Clinic, New Orleans, from 1946 to 1950 and head of its section on chest diseases from 1942 to 1952. He was an assistant professor of medicine at Yale University School of Medicine, New Haven, Conn., from 1934 to 1938 and professor of clinical medicine at Tulane University of Louisiana School of Medicine, New Orleans, from 1947 until he came to Pennsylvania in 1952. He is a past-president of the Louisiana Tuberculosis Association, the Southern Tuberculosis Conference, and the American Trudeau Society.

Nutritional and Metabolic Considerations in Disease.—A conference on nutritional and metabolic aspects in disease will be held at the College of Physicians in Philadelphia Nov. 9, 1:30-4:30 p. m., under the sponsorship of commissions on nutrition of the Medical Society of the State of Pennsylvania, the Philadelphia County Medical Society, and the National Vitamin Foundation. Drs. Michael G. Wohl, Philadelphia, and Robert S. Goodhart, New York, will preside at the conference. Participants will include Drs. Norman H. Jolliffe, New York; Irvine H. Page, Cleveland; Douglas Gordon Campbell, San Francisco; and Isidor S. Ravdin and Robert G. Ravdin, Philadelphia. Dr. William H. Sebrell, New York, will address the dinner meeting at the Barclay Hotel. The conference will be accepted by the American Academy of General Practice for a maximum of five hours credit (category 2).

UTAH

State Medical Election.—Newly elected officers of the Utah State Medical Association include: Dr. R. O. Porter, Logan, president; Dr. James Z. Davis, Salt Lake City, president-elect; Dr. Donald M. Moore, Ogden, secretary; Mr. Harold Bowman, Salt Lake City, executive secretary; and Dr. Alan P. Macfarlane, Salt Lake City, treasurer.

WISCONSIN

Cancer Meeting at Madison.—A discussion on cancer, cosponsored by the University of Wisconsin, University Hospitals, and the Wisconsin division of the American Cancer Society, will be held Nov. 12 at Madison from 9 a. m. until noon. The sessions will include office laboratory procedures, office biopsy techniques, cancer follow-up examinations, colostomy care, terminal care, and a research symposium on "What's Going on in Cancer Research?" Discussions will be followed by a luncheon (wives invited). Tickets for the Wisconsin-Illinois football game Saturday afternoon may be obtained at $3.60 per ticket by writing Dr. Robert J. Samp, Tumor Clinic, University Hospitals, Madison 6. No more than two tickets are allowed per applicant. Check should be made payable to the Wisconsin Athletic Association. There is no fee attached to the meeting or the luncheon, but advance registration is required.

Dearholt Days.—Dr. J. Burns Amberson Jr., professor emeritus of medicine at Columbia University College of Physicians and Surgeons, New York, has been chosen as the 1955 Dearholt Days speaker. Dr. Amberson, who inaugurated the annual Dearholt Days lectures of the Wisconsin Anti-Tuberculosis Association in 1940, is a past-president of both the American Trudeau Society and the National Tuberculosis Association. He will discuss "The Behavior of Tuberculosis Under Present Day Treatment" before the faculty and students of the Marquette University School of Medicine (auditorium, 561 N. 15th St., Milwaukee) at 3 p. m., Nov. 7, and before the faculty and students of the University of Wisconsin Medical School (auditorium, Service Memorial Institute, North Charter Street, Madison) at 3 p. m., Nov. 8. That evening at 8 p. m., he will discuss before the Dane County Medical Society the subject, "Prompt Diagnosis of Pulmonary Disease." The meeting will be held at the Veterans Administration Hospital, 2500 Overlook Terrace, Madison. Guests from other counties are invited.

GENERAL

Meeting on Exceptional Children.—The International Council for Exceptional Children, a department of the National Education Association, will meet Nov. 9-12 in Nashville, Tenn. Topics for discussion include: the severely mentally defective; status of physically handicapped; anoxia and mental retardation; epilepsy; and cerebral palsy. Dr. Henry H. Kessler, Newark, N. J., will speak at the president's dinner Tuesday night.

Meeting on Arteriosclerosis.—The American Society for the Study of Arteriosclerosis will hold its ninth annual meeting at the Sheraton Hotel, Chicago, Nov. 6-7, under the presidency of Dr. Louis N. Katz, Chicago. In all, 36 papers will be presented. Dr. Wilhelm C. Hueper, National Cancer Institute, Bethesda, Md., the guest lecturer at luncheon Sunday, 12 noon, will discuss "The Relationship Between Arteriosclerosis and Cancer." The presidential address will be delivered Sunday at 2:20 p. m. A cocktail party is scheduled for Sunday, 6:30 p. m., and a luncheon for Monday, 12 noon.

Meeting on Cytology.—The Inter-Society Cytology Council will hold its third annual meeting at the Statler Hotel, Cleveland, Nov. 11-12. Dr. Cyrus C. Erickson, Memphis, Tenn., will serve as chairman for the session on new advancements in cytology, and Dr. Emerson Day, New York, will be chairman of the session on applied cytology. Three round-table discussions have been scheduled for Saturday morning. Saturday afternoon Dr. Saul B. Gusberg, New York, will moderate a symposium, "Problems of Early Endometrial Cancer." Physicians, medical students, and technicians are cordially invited to attend.

Meeting on Epilepsy.—The Western Institute on Epilepsy and the Western Society of Electroencephalography will meet Nov. 10-12 at the Hotel Westward Ho, Phoenix, Ariz., under the joint sponsorship of the American Academy of General Practice, Arizona chapter, and the University of Utah School of Medicine, Salt Lake City. Dr. Wilder G. Penfield, director, Montreal (Canada) Neurological Institute, will be the guest speaker. A seminar on epilepsy will be held Thursday; clinical and research aspects of electroencephalography will be considered Friday; and the social, educational, and employment aspects of epilepsy will be discussed Saturday. Dr. John R. Green, Phoenix, Ariz., is president of the institute and the society.

Medical Society Executives Conference.—The Medical Society Executives Conference will be held Sunday, Nov. 27, at the Parker House, Boston, preceding the A. M. A. Clinical Meeting, which opens Nov. 29. After the all-day program, there will be a shore dinner at the Harvard Club (cocktail hour at 6 p. m.). Reservations for the luncheon ($3.50) and for the dinner ($5.50) are essential and must be received with a check by Nov. 15. Address Everett R. Spencer Jr., ℅ Massachusetts Medical Society, 22 Fenway, Boston 15, Mass. Members desiring to room at the Parker House during the A. M. A. Clinical Session should write at once to Convention Bureau, Boston Chamber of Commerce, 80 Federal St., Boston, indicating that they are members of the Medical Society Executives Conference and giving time of arrival.

Grants for Faculty Members.—The John and Mary R. Markle Foundation, 511 Fifth Ave., New York, will continue for the ninth year its program of five year grants for medical school faculty members. These grants were set up to offer academic security and financial help to medical school faculty members beginning careers in academic medicine. During the eight years of the program, the fund has appropriated $4,600,000 toward the support of 158 doctors in 66 medical schools in the United States and Canada. It is anticipated that about 20 appointments will be made in 1956. The dean of every medical school in the United States and Canada is invited to nominate a candidate on or before Dec. 1. The five year grants will be made at the rate of $6,000 annually to the medical school in which the scholar will teach and conduct research.

Military Surgeons Meet in Washington.—The Association of Military Surgeons of the United States will hold its annual convention at the Hotel Statler, Washington, D. C., Nov. 7-9, under the presidency of Major Gen. Joseph I. Martin, M. C., U. S. Army, special assistant to the surgeon general, department of the Army. After the presidential address Monday, 9:30 a. m., welcoming remarks will be made by Dr. Frank B. Berry, Assistant Secretary of Defense (Health and Medical). The themes of the meeting include "Medical Effects of Nuclear Warfare"; "Principles of Care of Mass Casualties"; and "Organization for the Management of Mass Casualties." Federal Civil Defense Administrator Val Peterson will be the speaker at the honors night dinner Wednesday, 7:30 p. m., at which the Sir Henry Wellcome medal and prize, the Gorgas medal, the Stitt award, the McLester award, the Louis Livingston Seaman prize, and the Founder's medal will be presented.

Christmas Seal Sale.—On Nov. 16 the National Tuberculosis Association will open its campaign for funds to support the 3,000 affiliated tuberculosis associations. The association points out that there are 400,000 persons with active tuberculosis in the United States and 800,000 persons with the disease in an inactive chronic phase; that 100,000 persons are being attacked by the disease each year; and that tuberculosis is costing this country 620 million dollars a year, largely in tax money. The work of the association and its affiliates is carried out on four major fronts (health education, case-finding, rehabilitation, and medical research) and is made possible by the annual sale of Christmas seals from which the associations derive their principal income. Of the funds collected during the sale, 94% is spent for work within the territory of the local and state associations and the remainder is sent to the National Tuberculosis Association to support its activities, including medical research.

Outbreaks of Encephalitis.—Dr. Albert L. Marshall, Indiana Department of Health, recently reported 12 cases of encephalitis, with six deaths, mainly in persons 60 years of age and over in a community in the extreme southwestern part of the state. The area was infested with mosquitoes, and numerous mosquito breeding places were found in open ditches and a nearby lagoon. Laboratory examination of blood specimens from two cases indicated the presence of a St. Louis type of infection. According to the U. S. Public Health Service, a comparatively large number of localized outbreaks of encephalitis in different parts of the country were reported in both man and animals during August and September. One of the first to be reported was an outbreak of encephalomyelitis among horses in the Taunton Valley area of Massachusetts. Subsequently, it was found that captive pheasants in Massachusetts, Rhode Island, and Connecticut were also involved in outbreaks. The infection has also been reported in pheasants in New Jersey. Equine encephalomyelitis was reported in North Carolina, South Carolina, Florida, Alabama, Mississippi, and Louisiana.

International Medical Assembly.—The Interstate Postgraduate Medical Association of North America will meet Nov. 14-17 at the Municipal Auditorium, Milwaukee, under the presidency of Dr. Charles W. Mayo, Rochester, Minn. The sessions will open Monday at 8:25 a. m. with an address of welcome by Dr. David V. Elconin, president, Medical Society of Milwaukee County. At 8 p. m. Drs. Warren H. Cole, Walter L. Palmer, and Warren W. Furey, Chicago, will present a panel on "Ulcers and Cancer of the Stomach." A panel on multiple sclerosis, Tuesday 4 p. m., will have as collaborators Drs. Pearce Bailey, Bethesda, Md., Roland P. MacKay, Chicago, and Francis J. Millen, Milwaukee, and will be followed by a clinic on intestinal obstruction by Dr. Rudolf J. Noer, Louisville, Ky. At 7:30 p. m. Dr. Andrew J. Rhodes, Toronto, Canada, will present "Diagnosis of Virus Diseases, with Special Reference to Tissue Cultures," after which Dr. Franklin G. Ebaugh, Denver, will discuss "The Use and Abuse of Sedative Drugs." The evening program will conclude with a panel on diverticulitis by Drs. Richard B. Cattell, Boston, Leon Schiff, Cincinnati, and S. Archibald Morton, Milwaukee. A symposium on trauma, Wednesday 2 p. m., will have as participants Drs. Richard W. Zollinger, Columbus, Ohio, George J. Curry, Flint, Mich., and E. Henry Botterell, Toronto, Canada. The speaker at the dinner in the Hotel Schroeder Wednesday, 7 p. m., will be Dr. Mayo, who will discuss "The Role of Medicine and Doctors in International Affairs." Dr. Alton Ochsner, New Orleans, president-elect, Interstate Postgraduate Medical Association, will be presented preceding a program of dances, songs, and music of various nations, which will be provided by the department of municipal recreation and adult education of the Milwaukee Public Schools.

Meeting of Cardiologists.—The fourth interim meeting of the American College of Cardiology will convene at the Hotel Claridge, Memphis, Tenn., Nov. 10-12, under the presidency of Dr. Walter S. Priest, Chicago. After the presidential address Thursday, 8:30 p. m., Dr. Arthur Grollman, professor of medicine, Southwestern Medical School of the University of Texas, Dallas, will discuss "The Physiopathology of Hypertension." Friday morning will be devoted to a symposium on rheumatic fever (Dr. Milton S. Saslaw, Miami, Fla., moderator); Friday afternoon to a symposium on rheumatic heart disease (Dr. Robert Quinn, Nashville, Tenn., moderator); and Saturday morning to a symposium on peripheral vascular diseases (Dr. F. Stanley Morest, Kansas City, Mo., moderator). Eight fireside conferences have been scheduled for Saturday afternoon. Dr. I. Frank Tullis, Memphis, Tenn., and Dr. Robert P. Glover, Philadelphia, will serve as moderators. The social program includes a reception and banquet Friday evening, a visit to the Memphis Museum of Art Saturday afternoon, a four hour boat trip Saturday evening, and a yacht cruise up the Mississippi River Sunday morning, followed by lunch at the Hotel Claridge.

CORRECTION

Film on Toxemia of Pregnancy.—In the review of the motion picture entitled Toxemia of Pregnancy in The Journal, Oct. 15, 1955, page 709, it should be stated that this film is procurable from Irwin, Neisler & Company, Decatur, Ill., instead of Mervin LaRue, Inc.

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: Various Centers. April 24-25 (Part II); June 19-20 (Parts I and II); September 4-5 (Part I). Candidates may file applications at any time but they must be received at least six weeks before the date of the examination for which application is made. New candidates should apply by formal registration; registered candidates may notify the board, indicating desired location, date and candidate number. Ex. Sec., Dr. John P. Hubbard, 133 South 36th St., Philadelphia 4.

BOARDS OF MEDICAL EXAMINERS

Alabama: *Examination* Montgomery, June 19-21. Sec., Dr. D. G. Gill, State Office Bldg., Montgomery.

Arkansas:* *Examination.* Little Rock, Nov. 10-11. Sec., Dr. Joe Verser, Harrisburg.

California: *Oral and Clinical Examinations for Foreign Medical School Graduates.* San Francisco, Nov. 13. *Oral Examination for Reciprocity Applications.* San Francisco, Nov 12. Sec., Dr. Louis E. Jones, Room 536, 1020 N St., Sacramento.

Colorado:* *Examination.* Denver, Dec. 6-7. Final date for filing application is Nov. 4. Exec. Sec., Mrs. Beulah H. Hudgens, 831 Republic Bldg., Denver 2.

Connecticut:* *Regular. Examination.* Hartford, Nov. 8-10. Sec., Dr. Creighton Barker, 160 St. Ronan St., New Haven. *Homeopathic.* Derby, Nov. 8-19. Sec., Dr. Donald A. Davis, 38 Elizabeth St., Derby.

Delaware: *Examination.* Dover, Jan. 10-12. *Reciprocity.* Dover, Jan. 19. Sec., Dr. Joseph S. McDaniel, Dover.

District of Columbia:* *Reciprocity.* Washington, Dec. 12. Deputy Director, Mr. Paul Foley, 1740 Massachusetts Ave. N.W., Washington 6.

Florida:* *Examination.* Miami Beach, Nov. 20-21. Sec., Dr. Homer L. Pearson, 901 N. W. 17th St., Miami.

Georgia: *Examination and Reciprocity.* Atlanta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

Idaho: *Examination and Reciprocity.* Boise, Jan. 9-11. Exec. Sec., Mr. Armand L. Bird, 364 Sonna Bldg., Boise.

Illinois: *Examination and Reciprocity.* Chicago, Jan. 24-26. Supt. of Regis., Mr. Frederic B. Selcke, Capitol Building, Springfield.

Indiana: *Examination.* Indianapolis, June. Exec. Sec., Miss Ruth V. Kirk, 538 K. of P. Bldg., Indianapolis.

Iowa:* *Examination.* Des Moines, Dec. 5-7. Ex. Sec., Mr. Ronald V. Saf, State Office Bldg., Des Moines.

Kansas: *Examination and Endorsement.* Topeka, Dec. 7-8. Sec., Dr. Lyle F. Schmaus, New Brotherhood Bldg., Kansas City.

Kentucky: *Examination.* Louisville, Dec. 5-7. Asst. Sec., Mr. R. F. Dixon, 620 S. 3rd St., Louisville.

Maine: *Examination and Reciprocity.* Portland, Nov. 8-9. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

Maryland: *Examination.* Baltimore, Dec. 13-16. Exec. Sec., Miss Hannah A. McCarthy, 1215 Cathedral St., Baltimore 1.

Michigan:* *Examination.* Ann Arbor and Detroit, June 13-15 (Tentative). Sec., Dr. E. C. Swanson, 118 Stevens T. Mason Bldg., Lansing.

Minnesota:* *Examination.* Minneapolis, Jan. 18-20. Sec., Dr. F. H. Magney, 230 Lowry Medical Arts Bldg., St. Paul 2.

Mississippi: *Reciprocity.* Jackson, December. Asst. Sec., Dr. R. N. Whitfield, State Board of Health, Jackson.

Montana: *Examination and Reciprocity.* Helena, April 3-4. Sec., Dr. S. A. Cooney, 7 West 6th Ave., Helena.

Nebraska:* *Examination.* Omaha, June 18-20. Director, Bureau of Examining Boards, Mr. Husted K. Watson, 1009 State Capitol Bldg., Lincoln.

Nevada:* *Examination and Reciprocity.* Reno, Jan. 3. Sec., Dr. G. H. Ross, 112 N. Curry St., Carson City.

New Mexico:* *Examination and Reciprocity.* Santa Fe, Nov. 21-22. Sec., Dr. R. C. Derbyshire, 227 E. Palace Ave., Santa Fe.

New Hampshire: *Examination and Endorsement.* Concord, March 14. Sec., Dr. John S. Wheeler, 107 State House, Concord.

New York: *Examination.* Albany, Buffalo, Syracuse and New York, Feb. 7-10. Sec., Dr. Stiles D. Ezell, 23 S. Pearl St., Albany.

North Dakota: *Examination.* Grand Forks, Jan. 4-6. *Reciprocity.* Grand Forks, Jan. 7. Sec., Dr. C. J. Glaspel, Box 228, Grafton.

Ohio: *Examination.* Columbus, Dec. 15-17. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

Oklahoma:* *Examination.* Oklahoma City, June 5-6. Sec., Dr. E. F. Lester, 813 Braniff Bldg., Oklahoma City.

Pennsylvania: *Examination.* Philadelphia, January. Acting Sec., Miss Marguerite G. Steiner, Box 911, Harrisburg.

Rhode Island:* *Examination.* Providence, Jan. 5-6. Admin. of Professional Education, Mr. Thomas B. Casey, Room 366, State Office Bldg., Providence 2.

South Carolina: *Examination.* Columbia, Nov. 7. Sec., Mr. N. B. Heyward, 1329 Blanding St., Columbia.

South Dakota:* *Examination.* Sioux Falls, Jan. 17-18. Exec. Sec, Mr. John C. Foster, 300 First National Bank Bldg., Sioux Falls.

Tennessee:* *Examination.* Memphis, Dec. 21-22. Sec., Dr. H. W. Qualls, 1635 Exchange Bldg., Memphis.

Texas:* *Examination and Reciprocity.* Galveston, Dec. 1-3. Sec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Fort Worth 2.

Utah: *Reciprocity.* Salt Lake City, Nov. 15. *Examination.* Salt Lake City. July. Director, Mr. Frank E. Lees, 324 State Capitol Bldg., Salt Lake City 1.

Virginia: *Examination.* Richmond, Dec. 7-9. *Reciprocity.* Richmond, Dec. 6. Final date for filing application is Nov. 21. Address the Secretary, 631 First St. S.W., Roanoke.

West Virginia: *Examination and Reciprocity.* Charleston, Jan. 9-11. Sec., Dr. Newman H. Dyer, State Office Bldg., No. 3, Charleston 5.

Wisconsin:* *Reciprocity and Examination.* Madison, Jan. 10-12; *Reciprocity,* Madison, Spring; *Reciprocity and Examination.* Milwaukee, July 10-12. Sec., Dr. Thomas W. Tormey, Jr., 1140 State Office Bldg., Madison.

Wyoming: *Examination and Endorsement.* Cheyenne, Feb. 6. Sec., Dr. Franklin D. Yoder, State Office Bldg., Cheyenne.

Alaska:* On application. Sec., Dr. W. M. Whitehead, 172 South Franklin St., Juneau.

Guam. The Commission on Licensure will meet whenever a candidate appears or submits his credentials. Sec., Dr. John E. Kennedy, Agana.

Hawaii: *Examination.* Honolulu, Jan. 9-12. Sec., Dr. I. L. Tilden, 1020 Kapiolani, St., Honolulu.

Virgin Islands: *Examination and Endorsement.* St. Thomas, Nov. 8-9. Sec., Dr. Earle M. Rice, St. Thomas.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Arizona: *Examination and Reciprocity.* Tucson, Dec. 20. Sec., Dr. H. D. Rhodes, University of Arizona, Tucson.

District of Columbia: *Examination.* Washington, April 23-24. Deputy Director, Mr. Paul Foley, 1740 Massachusetts Ave. N.W., Washington 6.

Florida: *Examination.* Gainesville, Nov. 5. Sec., Mr. M. W. Emmel, Box 340, Gainesville.

Michigan: *Examination.* Detroit and Ann Arbor, Feb. 10-11. Sec., Mrs. Anne Baker, 410 W. Michigan Ave., Lansing 15.

Minnesota: *Examination.* Minneapolis, Jan. 3-4. Sec., Dr. Raymond N. Bieter, 126 Millard Hall, University of Minnesota, Minneapolis.

Nevada: *Examination.* Reno, Jan. 3. Sec., Dr. Donald G. Cooney, Box 9005, University Station, Reno.

New Mexico: *Examination.* Santa Fe, Jan. 15. Sec., Mrs. Marguerite Cantrell, Box 1522, Santa Fe.

Oklahoma: *Examination.* Oklahoma City, Mar. 30-31. Sec., Dr. E. F. Lester, 813 Braniff Bldg., Oklahoma City.

Oregon: *Examination.* Portland, Dec. 3; March 3; June 2, Sept. 8 and Dec. 1. Dr. Earl M. Pallett, Sec., State Board of Higher Education, Eugene.

Rhode Island: *Examination.* Providence, Nov. 16. Admin. of Professional Regulation, Mr. Thomas B. Casey, Room 366, State Office Bldg., Providence.

South Dakota: *Examination.* Vermillion, Dec. 2-3. Sec., Dr. Gregg M. Evans, 310 E. 15th St., Yankton.

Texas: *Examination.* Galveston, Dallas, and such other locations as are warranted, April. Sec., Bro. Raphael Wilson, 407 Perry-Brooks Bldg., Austin.

Wisconsin: Milwaukee, Dec. 3. Final date for filing application is Nov. 25. Madison, Apr. 7. Final date for filing application is Mar. 30. Sec., Dr. W. H. Barber, 621 Ransom St., Ripon.

Alaska: On application. Juneau or other towns in Territory as decided by Board. *Reciprocity.* On application. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

---

*Basic Science Certificate required.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1955 Clinical Meeting, Boston, Nov. 29-Dec. 2.

1956 Annual Meeting, Chicago, June 11-15.

1956 Clinical Meeting, Seattle, Nov. 27-30.

1957 Annual Meeting, New York, June 3-7.

1957 Clinical Meeting, Philadelphia, Dec. 3-6.

National Medical Public Relations Conference, *Hotel Statler, Boston,* Nov. 28. Mr. Leo F. Brown, 535 N. Dearborn St., Chicago 10, Director.

American Academy of Dermatology and Syphilology, Palmer House, Chicago, Dec. 3-8. Dr. James R. Webster, 55 East Washington St., Chicago 2, Secretary.

American Academy of Obstetrics and Gynecology, Conrad Hilton Hotel, Chicago, Dec. 13. Dr. C. Paul Hodgkinson, 116 South Michigan Blvd., Chicago, Secretary.

American Association of Blood Banks, Palmer House, Chicago, Nov. 19-21. Miss Marjorie Saunders, 3707 Gaston Ave., Dallas 10, Texas, Secretary.

American College of Cardiology Interim Meeting, Hotel Claridge, Memphis, Tenn., Nov. 10-12. Dr. Philip Reichert, Empire State Bldg., New York 1, Secretary.

American College of Preventive Medicine, Kansas City, Mo., Nov. 16-17. Dr. T. Paul Haney, 521 North Boulder St., Tulsa, Okla., Secretary.

American League Against Epilepsy, Roosevelt Hotel, New York, Dec. 8. Dr. Peter Kellaway, Baylor University College of Medicine, Houston 25, Tex., Secretary.

American Medical Women's Association, Board Meeting, Netherlands-Plaza Hotel, Cincinnati, Nov. 11-13. Miss Lillian T. Majally, 1790 Broadway, New York 19, Executive Secretary.

American Public Health Association, Muehlebach Hotel and Municipal Auditorium, Kansas City, Mo., Nov. 14-18. Dr. Reginald M. Atwater, 1790 Broadway, New York 19, Executive Secretary.

American Rheumatism Association, Interim Session, National Institutes of Health, Bethesda, Md., Dec. 9. Dr. Edward F. Hartung, 580 Park Ave., New York 21, Secretary.

American School Health Association, Hotel President, Kansas City, Mo., Nov. 14-18. *Dr. A. O. DeWeese, 515 East Main St., Kent, Ohio,* Secretary.

American Society for the Study of Arteriosclerosis, Hotel Sheraton, Chicago, Nov. 6-7. Dr. O. J. Pollak, P.O. Box 228, Dover, Del., Secretary.

Association of Military Surgeons of the U. S., Hotel Statler, Washington, D. C., Nov. 7-9. Colonel Robert E. Bitner, 1726 I St. N.W., Washington 6, D. C., Secretary.

Association for Research in Nervous and Mental Diseases, Hotel Roosevelt, New York, Dec. 9-10. Dr. Clarence C. Hare, 710 West 168th St., New York 32, Secretary.

Association of State and Territorial Health Officers, Hotel Washington, Washington, D. C., Nov. 6-12. Dr. Franklin D. Yoder, State Board of Health, Cheyenne, Wyo., Secretary.

Eastern Section, American Federation for Clinical Research, Hotel Warwick and College of Physician's Building, Philadelphia, Dec. 2-3. *Dr. Charles R. Shuman, Temple Univ. Hospital, Broad* and *Ontario* Sts., Philadelphia 40, Chairman.

Industrial Hygiene Foundation of America, Mellon Institute, Pittsburgh, Nov. 16-17. Dr. C. Richard Walmer, Mellon Institute, Pittsburgh 13, Managing Director.

Inter-Society Cytology Council, Statler Hotel, Cleveland, Nov. 11-12. Dr. Paul F. Fletcher, 634 N. Grand Blvd., St. Louis 3, Secretary.

Interstate Post Graduate Medical Association of North America, Municipal Auditorium, Milwaukee, Nov. 14-17. Mr. Roy T. Ragatz, 207 Gay Bldg., Madison 3, Wis., Executive Director.

Medical Society Executives Conference, Parker House, Boston, Nov. 27. Mr. H. Martin Baker, 1102 South Hillside, Witchita 17, Kansas, Secretary.

New England Health Education Association, Boston, Dec. 2. Miss Wyntha Tompkins, Middlesex Health Association, Essex, Mass., Secretary.

Puerto Rico Medical Association, Santurce, Dec. 7-11. Dr. Luis R. Guzman-Lopez, Box 9111, Santurce, Secretary.

Radiological Society of North America, Palmer House, Chicago, Dec. 11-16. Dr. Donald S. Childs. 713 E. Genesee St., Syracuse 2, N. Y., Secretary.

Regional Meetings, American College of Physicians:

Newark, N. J., Nov. 9. Dr. Edward C. Klein Jr., 6 S. Kingsman Rd., South Orange, N. J., Governor.

Pittsburgh, Nov. 10, Dr. Frank J. Gregg, 3700 Fifth Ave., Pittsburgh 13, Governor.

Cincinnati, Nov. 17. Dr. Charles A. Doan, Ohio State University College of Medicine, Columbus 10, Ohio, Governor.

Baltimore, Nov. 19. Dr. R. Carmichael Tilghman, 6 East Eager St., Baltimore 2, Governor.

Vancouver, B. C., Nov. 19. Dr. H. A. DesBrisay, 925 West Georgia St., Vancouver, B. C., Governor.

Detroit, Dec. 3. Dr. H. Marvin Pollard, 1313 East Ann St., Ann Arbor, Mich., Governor.

Hot Springs, Ark., Dec. 3. Dr. A. A. Blair, 100 S. 14th St., Ft. Smith, Ark., Governor.

Winston-Salem, N. C., Dec. 8. Dr. Elbert Persons, Duke Hospital, Durham, N. C., Governor.

Society of Clinical Surgery, Hotel Roosevelt, New Orleans, Nov. 11-12. Dr. Frank F. Allbritten Jr., University of Kansas Medical Center, Kansas City, Mo., Secretary.

Southern Medical Association, Shamrock Hotel, Houston, Texas, Nov. 14-17. Mr. V. O. Foster, 1020 Empire Bldg., Birmingham 3, Ala., Secretary-Manager.

Southern Society of Cancer Cytology, Houston, Texas, Nov. 14-17 Dr. J. Ernest Ayre, 1155 N.W. 14th St., Miami, Fla., Secretary.

Southern Surgical Association, The Homestead, Hot Springs, Va., Dec. 6-8. Dr. George G. Finney, 2947 St. Paul St., Baltimore 18, Secretary.

Southern Thoracic Surgical Association, The Greenbrier, White Sulphur Springs, W. Va., Dec. 2-5. Dr. Hawley H. Seiler, 442 West Lafayette St., Tampa 6, Fla.

Southwestern Medical Association, Westward Ho Hotel, Phoenix, Ariz., Nov. 16-18. Dr. Cèlso C. Stapp, 800 Montana St., El Paso, Texas, Secretary.

State Medical Journal Conference, Chicago, Nov. 7-8. Mr. Alfred J. Jackson, 535 N. Dearborn St, Chicago 10, Director.

Western Orthopedic Association, The Reef, Honolulu, Hawaii, Nov. 7-10. Dr. Ivar J. Larsen, 1133 Punchbowl, Honolulu 13, Hawaii, Secretary.

Western Society of Electro-Encephalography, Westward Ho Hotel, Phoenix, Ariz., Nov. 10-12. Dr. Sylvester N. Berens, 902 Boren Ave., Seattle, Secretary.

Western Surgical Association, Olympic Hotel, Seattle, Dec. 1-3. Dr. John T. Reynolds, 612 N. Michigan Blvd., Chicago 11, Secretary.

FOREIGN AND INTERNATIONAL

All India Medical Conference, Jaipur, India, Dec. 26-28. Dr. B. N. *Consul, Association Bldg., S.M.S. Hospital Premises, Jaipur, India,* Organizing Secretary.

Conference of International Union for Health Education of the Public, Rome, Italy, Apr. 27-May 5, 1956. Mr. Lucien Viborel, 92 rue St. Denis, Paris 1er, France, Secretary-General.

Congress of International Association of Limnology, Helsinki, Finland, July 26-Aug. 7, 1956. For information address: Dr. H. Luther, Snellmansgatan 16 C 36, Helsinki, Finland.

Congress of International Association of Logopedics and Phoniatrics, Barcelona, Spain, Sept. 3-7, 1956. Dr. J. Perello, Provenza 319, Barcelona 9, Spain, Secretary-General.

Congress of International Society of Hematology, Hotel Statler, Boston, Mass., U.S.A., Sept. 3-8, 1956. Dr. W. C. Moloney, 39 Bay State Road, Boston, Mass., U.S.A., Secretary.

Congress of International Society for Research on Anesthesia, Miami Beach, Fla., U.S.A., Mar. 12-15, 1956. For information write: Dr. R. J. Whitacre, 13951 Terrace Road, Cleveland 12, Ohio, U. S. A.

Congress of Latin Society of Ophthalmology, Madrid, Spain, April 24-28, 1956. For information address: Dr. Costi, Montalban 3, Madrid, Spain.

European Congress of Allergology, Florence, Italy, May 1956. Prof. Umberto *Serafini, Largo della Gancia 5,* Rome, Italy, Secretary-General.

European Congress of Cardiology, Stockholm, Sweden, Sept. 10-14, 1956. Dr. Karl Erik Grewin, Sodersjukhuset, Stockholm, Sweden, General Secretary.

European Symposium on Vitamin B_{12}, Hamburg, Germany, May 1956. For information write: Doz. Dr. H. Bauer, Nervenklinik. Hamburg-Eppendorf, Germany.

Inter-American Congress of Cardiology, Havana, Cuba, Nov. 4-10, 1956. For information address: Dr. Ramon Aixala, Apartado 2108, Havana, Cuba.

International Academy of Pathology, Cincinnati, Ohio, U. S. A., April 24-25, 1956. Dr. F. K. Mostofi, Armed Forces Institute of Pathology, Washington 25, D. C., U. S. A., Secretary.

International Congress Against Alcoholism, Istanbul, Turkey, Sept. 10-15, 1956. For information address: International contre l'Alcoolisme, Case Gare 49, Lausanne, Switzerland.

International Congress of Allergology, Rio de Janeiro, Brazil, S. A., Nov. 6-13. Dr. Bernard N. Halpern, 197 boulevard St. Germain, Paris 7^{e}, France, Secretary General.

International Congress of Anthropological and Ethnological Sciences, Philadelphia, Pa., U. S. A., Sept. 2-9, 1956. Dr. William N. Fenton, National Research Council, Division of Anthropology and Psychology, 2101 Constitution Avenue, Washington 25, D. C., U. S. A., Secretary-General.

International Congress on Diseases of the Chest, Cologne, Germany, Aug. 19-23, 1956. Mr. Murray Kornfeld, 112 East Chestnut St., Chicago 11, Illinois, U. S. A., Executive Director.

International Congress of Entomology, Montreal, Canada, Aug. 17-25, 1956. Mr. J. A. Downes, Science Service Bldg., Carling Ave., Ottawa, Ont., Canada, Secretary.

International Congress of Gastroenterology, London, England, July 18-21, 1956. Mr. Hermon Taylor, London Hospital, White Chapel, London E.1, England, Honorable Secretary.

International Congress for the History of Science, Florence and Milan, Italy, Sept. 3-10, 1956. Dr. M. L. Bonelli, Instituto di Ottica, Arcetri, Florence, Italy, Secretary-General.

International Congress of Hydatid Disease, Athens, Greece, Sept. 14-18, 1956. Prof. B. Kourias, Croix-Rouge Hellenique, 1 rue Mackenzie King, Athens, Greece, Secretary-General.

International Congress of Internal Medicine, Madrid, Spain, Sept. 19-23, 1956. Dr. J. C. De Oya and Dr. J. Gimena, Hostaleza No. 90, Madrid, Spain, Secretaries.

International Congress of International College of Surgeons, Palmer House, Chicago, Illinois, U. S. A., Sept. 9-13, 1956. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U. S. A., Secretary-General.

International Congress of Neo-Hippocratic Medicine, Montecatini, Terme, Italy, May 20-22, 1956. Dr. Valente, 41 Avenue Verdi, Montecatini Terme, Italy, Secretary-General.

International Congress of Paediatrics, Copenhagen, Denmark, July 22-27, 1956. Professor P. Plum, Rigshospitalet, Copenhagen, Denmark, President.

International Congress of Physical Medicine, Copenhagen, Denmark, August 20-24, 1956. Dr. B. Strandberg, Kobenhavns amts sygehus i Gentofte, Dept. of Rheumatology and Physical Medicine, Hellerup, Denmark, Honorable Secretary.

International Congress of Physiopathology of Animal Reproduction and Artificial Insemination, Cambridge, England, June 25-29, 1956. For information address: Dr. Joseph Edwards, Production Division, Milk Marketing Board, Thames Ditton, Surrey, England.

International Congress of Radiology, Mexico, D. F., Mexico, July 22-28, 1956. Dr. Jose Noriega, Tepic 126 (2e piso), Mexico, D. F. 7, Mexico, Secretary General.

International Congress of World Confederation for Physical Therapy, Hotel Statler, New York, New York, U. S. A., June 17-23, 1956. For information address: Miss Mildred Elson, American Physical Therapy Association, 1790 Broadway, New York 19, New York, U. S. A.

International General Medical Congress, University of Rosario Medical College, Rosario, Argentina, S. A., Nov. 7-12. Dean Jose Imhoff, Santa Fé 3100, Rosario, Argentina, S. A., Chairman.

International Genetics Symposium, Tokyo and Kyoto, Japan, Sept 6-12, 1956. For information address: Secretary, International Genetics Symposium, Science Council of Japan, Ueno Park, Tokyo, Japan.

International Physiological Congress, Brussels, Belgium, July 29-Aug. 5, 1956. For information address: Prof. J. Reuse, Faculte de Medicine et de Pharmacie, 115 Boulevard de Waterloo, Brussels, Belgium.

International Professional Union of Gynecologists and Obstetricians, Madrid, Spain, Sept. 28-29, 1956. Dr. Jacques Courtois, 1 rue Racine, St-Germain-en-Laye (S and O), France, Permanent International Secretary-General.

Latin American Congress of Pathology, Mexico, D. F., Mexico, Dec. 11-17. For information address: Laboratorio de Anatomia Patologica, Instituto N. de Cardiologia, Avenida Cuauhtemoc 300, Mexico 7, D. F., Mexico.

Latin American Congress of Physical Medicine, San Juan, Puerto Rico and Curacao, N.W.1., Jan. 29-Feb. 8, 1956. Dr. Cassius Lopez de Victoria, 176 East 71st St., New York 21, New York, U. S. A., Executive Director.

North Queensland Medical Conference, Cairns, North Queensland, Australia, June 25-30, 1956. Dr. W. R. Horsfall, P. O Box 672, Cairns, N.Q., Australia, Secretary.

Pan-American Academy of General Practice, San Juan, Puerto Rico and Curacao, N.W.1., Jan. 29-Feb. 8, 1956. Dr. Arturo Martinez, 54 East 72d St., New York 21, New York, U. S. A., Secretary.

Pan American Congress of Gastroenterology, Havana, Cuba, Jan. 20-27, 1956. For information address: Dr. Norberto M. Stapler, 1267 J. E. Uriburu, Buenos Aires, Argentine, S. A.

Pan American Congress of Ophthalmology, Santiago, Chile, S. A., Jan. 9-14, 1956. Dr. Rene Contardo, Huerfanos 930, Of. 74, Santiago, Chile, Secretary General.

Pan American Congress of Otorhinolaryngology and Bronchoesophagology, San Juan, Puerto Rico, March 8-12, 1956. Dr. C. E. Munoz MacCormick, Apartado 9111, Santurce, Puerto Rico, Secretary General.

Pan American Medical Women's Alliance, Santiago, Chile, March 6-13, 1956. For information address: Dr. Eva Cutright, 458 Beall Ave., Wooster, Ohio, U. S. A.

Venezuelan Congress of Medical Sciences, Caracas, Venezuela, S. A., Nov. 18-26. Dr. A. L. Briceno Rossi, Apartado 4412, Ofic. del Este, Caracas, Venezuela, S. A., Secretary General.

World Congress on Fertility and Sterility, Naples, Italy, May 18-26, 1956. For information address: Prof. G. Tesauro, S. Andrea della Dame, 19, Naples, Italy.

World Medical Association, Havana, Cuba, Oct. 9-15, 1956. Dr. Louis H. Bauer, 345 East 46th St., New York 17, New York, U. S. A., Secretary-General.

MAGAZINE-TELEVISION REPORT

The following list of current medical articles in mass-circulation magazines and forthcoming network television programs on medical subjects is published each week only for the information of readers of The Journal. *Unless specifically stated, the American Medical Association neither approves nor disapproves of the articles and programs reported.*

TELEVISION

Monday, Nov. 14

NBC-TV, 11 a. m. to 12 noon EST. "Medical and Health News with Howard Whitman," a segment of the "Home" program.

ABC-TV, 9:30 p. m. EST. "Medical Horizons" takes its cameras to the Buffalo General Hospital, University of Buffalo School of Medicine, for a report on recent developments in the treatment of arthritis.

MAGAZINES

Life, Oct. 31, 1955

"A Plea Against Blind Fear of Cancer," by George Crile Jr., M.D.

Dr. Crile argues that cancer education programs have created an excessive public fear of the disease, whereas a more positive campaign would create an acceptance untouched by hysteria. This controversial article, however, is accompanied by a statement from the officers of the A. M. A., National Cancer Institute, and the American Cancer Society contradicting Dr. Crile's charges. Early diagnosis and successful treatment is dependent upon an alert public, they report, and his philosophy accents fatalism rather than hope.

Life, Oct. 22, 1955

"Dedicated Man in His Three Jobs"

Doctor-mayor-preacher Charles Henner is credited in this picture-report with revitalizing the moribund community of Santa Anna, Texas, through his professional, civic, and religious leadership.

"Deep in the Dirt of Texas"

"Uranium sitting" has become a big business where cure-seekers bathe in allegedly radioactive soil at $2 a "treatment."

Good Housekeeping, November, 1955

"The Obese Child," by L. Emmett Holt Jr., M.D.

Dr. Holt points out that the difference between the fat child and the one with normal weight is appetite, and he discusses the environmental and psychological forces that affect it.

Look, Nov. 15, 1955

"A Sister from Maryknoll Becomes a Doctor," by Roland H. Berg

Fourth-year medical student Sister Maria Fidelis is pictured in her clinical studies at Marquette University, where she is preparing for medical missionary work.

Ladies' Home Journal, November, 1955

"Cystic Fibrosis . . . Enemy of Our Children," by Ronald M. Deutsch

One out of every 1,000 U. S. children will have cystic fibrosis, as yet an incurable disease. The article discusses the known symptoms and treatments and the advances made by researchers seeking a cure.

McCall's, November, 1955

"I. Q. Test for Babies," by Selwyn James

Child psychologists have developed tests to measure infant intelligence. Pictured are obstacles and devices used to observe the baby's reaction.

"Lourdes, the Facts and the Miracles," by Ruth Cranston

The author of the book, from which this article was excerpted, reports on the thousands of inexplicable cures effected at Lourdes and their certification by reputable scientists.

GOVERNMENT SERVICES

NAVY

Nurse Training Program for Hospital Corps WAVES.—The Bureau of Medicine and Surgery and the Bureau of Naval Personnel are providing an opportunity for enlisted Hospital Corps WAVES to qualify for officer status in the Nurse Corps of the Navy. The program should also provide an additional source for augmentation of the Nurse Corps. Ten Hospital Corps WAVES were approved for enrollment in September, 1955, in the basic nursing education program at civilian universities.

Applicants must be high school graduates with a standing in the upper half of their graduating class, and they must have been a member of the Hospital Corps for at least one year, six months of which must have been on ward duty engaged in the care of patients under the immediate supervision of officers of the Nurse Corps. The WAVES selected for this training have been discharged from their present enlistments and have reenlisted for six years as hospitalmen, in pay grade E-3, retained on active duty in the Naval Reserve. On successful completion of the four year course and attainment of a baccalaureate degree, they will be commissioned ensigns in the Nurse Corps of the U. S. Navy, if in all respects qualified, for a period of active duty of at least four years. It is anticipated that the program will be continued and expanded in ensuing fiscal years.

Changes Among the Admirals.—Rear Adm. French R. Moore, M. C., has reported to the Bureau of Medicine and Surgery, where he will relieve Rear Adm. Thomas F. Cooper, M. C., as assistant chief for planning and logistics. Admiral Cooper will become inspector general of medical department activities on the detachment of Rear Adm. H. Lamont Pugh, present inspector general. Admiral Pugh is relieving Rear Adm. Leslie O. Stone, M. C., on Sept. 30, 1955, as commanding officer of the National Naval Medical Center, Bethesda, Md. Admiral Stone retired from the naval service on Oct. 1.

First Woman Doctor Selected as Captain.—Commander Gioconda R. Saraniero, M. C., U. S. Navy, is the first woman doctor to be selected for promotion to the grade of captain in the Medical Corps of the U. S. Navy. Commander Saraniero's selection for promotion to four stripes was announced by the Secretary of the Navy on Oct. 15. She is presently on duty at the infirmary, headquarters support activities, Naples, Italy.

Personal.—Commander Julius M. Amberson, M. C., now attached to the Naval Medical School, Bethesda, Md., was commended by the Secretary of the Navy for outstanding performance of duty while serving in Task Force Ninety, from Aug. 13 to Sept. 23, 1954, during the operation "Passage to Freedom," in which about 100,000 Viet-Namese refugees were transported by sea to new homes in southern Indochina. Commander Amberson was awarded a Bronze Star in lieu of a Second Commendation ribbon.—Capt. Theodore Hamilton Armstrong, M. C., was placed on the retired list on Sept. 1, 1955, but continued on active duty as a retired officer.

ATOMIC ENERGY COMMISSION

Group from Abroad Tours Atomic Medical Facilities.—Thirteen leading doctors from 12 countries are on a five-week tour of atomic medical facilities in the United States. The party includes doctors from Burma, Chile, Ecuador, France, Guatemala, Indonesia, Lebanon, Luxembourg, Paraguay, Portugal, Uruguay, and Turkey. This is the second medical group to make a visit of this kind. The project, part of President Eisenhower's atoms-for-peace program, is sponsored by the U. S. Atomic Energy Commission and the Department of State. The American Council of Education will be in charge of arrangements. The visitors will study atomic medical and research techniques with emphasis on cancer research and treatment.

Beginning with an official welcome in Washington at the American Council of Education and a tour of the National Institutes of Health in Bethesda, Md., the schedule for the tour is as follows: Oct. 19-25: Chicago Area—Argonne Cancer Research Hospital, Argonne National Laboratory, Northwestern University School of Medicine, and the Veterans Administration Research Hospital. Oct. 27-Nov. 1: San Francisco Area—Radiological Laboratory and the Medical School of the University of California and the U. S. Naval Radiological Defense Laboratory. Nov. 7-10: In Boston—Cancer Research Institute of the New England Deaconess Hospital, Harvard Medical School, and a number of hospitals. Nov. 14-21: New York Area—Brookhaven National Laboratory, Sloan-Kettering Institute for Cancer Research, Francis Delafield Hospital, and Columbia University Medical Center.

PUBLIC HEALTH SERVICE

PHS Clarifies Salk Vaccine Regulation in Private Practice.—In response to an inquiry from the A. M. A. Washington office, the U. S. Public Health Service has clarified one of its regulations regarding the relationship between physicians in private practice and the Salk poliomyelitis vaccine inoculation campaigns. Under the regulations, no public inoculation program in the state, even if financed without federal help, may apply the means test to determine whether a family can afford to pay for the treatment. However, this still does not rule out the use by physicians in their private practice of vaccine purchased with U. S. funds. On this point PHS states: "The restriction in the act against use of a means test . . . is not applicable to the administration of poliomyelitis vaccine by private physicians or nonprofit organizations when . . . not acting as employees or agents of a public agency, even though the vaccine may have been purchased with federal grant funds." In this case there would be no charge to the patient for the vaccine, but the physician, in setting his private fee for his services, would be permitted to apply the means test. Earlier PHS had explained that federal funds could be used to pay private physicians for their services in performing inoculations either in their own offices or in clinics, on a per diem or fee basis, with the physician regarded as an employee or "agent" of the public agency conducting the campaign. Under these conditions there could be no means test, as the treatment would be regarded as part of a public program.

Booklet on Cardiovascular Disease.—The Public Health Service has issued a 68-page booklet, "Cardiovascular Disease—Data on Mortality, Prevalence and Control Activities." The booklet contains 36 tables and provides information on the mortality rate and prevalence of cardiovascular-renal disease and on heart disease control activities. The booklet, (Public Health Service Publication 429), was prepared by the heart disease control program of the division of special health services. Single copies are available from the heart program.

CIVIL AERONAUTICS ADMINISTRATION

Regional Flight Surgeon Needed.—The position of regional flight surgeon at the CAA regional office in Kansas City, Mo., is vacant and applications to fill this vacancy are now being received. The major duties consist of the selection, appointment, and supervision of CAA designated medical examiners for this 11-state region, and the adjudication of controversial cases referred to him for decision. The position requires some travel in the discharge of these functions. There is opportunity for maintenance of technical and professional proficiency through affiliation with medical schools, hospitals, and clinics.

The successful applicant will be on civil service status and will receive a gross annual salary of $10,065 with paid vacations of from 13 to 26 working days a year, 13 days of cumulative sick leave, and 8 federal holidays. He may supplement his income through private practice at off-duty hours. The regular tour of duty is eight hours a day, five days a week. Inquiries should be addressed to W. R. Stovall, M.D., Chief, Medical Division, Civil Aeronautics Administration, Washington 25, D. C.

DEATHS

Solomon, Charles, Brooklyn, N. Y.; born in Brooklyn Feb. 2, 1896; University and Bellevue Hospital Medical College, New York City, 1918; specialist certified by the American Board of Internal Medicine; lecturer in medicine, State University of New York College of Medicine, New York City; director of graduate course in applied pharmacology and therapeutics, Long Island University, Brooklyn College of Pharmacy; from 1934 to 1937 assistant clinical professor of medicine at the Long Island College of Medicine; lecturer in pharmacology and therapeutics, School of Nursing, Jewish Hospital; attending physician at the Jewish Hospital and the Jewish Sanitarium and Hospital for Chronic Diseases; a delegate to the United States Pharmacopeial Convention of 1950, representing the Medical Society of the State of New York; member of Alpha Omega Alpha, medical honor society, the Medical Society of the State of New York, Brooklyn Society of Internal Medicine, American Pharmaceutical Association, and the American Association for the Advancement of Science; fellow of the American College of Physicians; author of "Pharmacology, Materia Medica and Therapeutics," "Diet Manual of the Jewish Hospital of Brooklyn," "Prescription Writing and Formulary," and "Traffic of Health"; died Sept. 15, aged 59, of Stokes-Adams disease with ventricular fibrillation.

Gengenbach, Franklin Paul ⊕ Denver; born in Philadelphia Oct. 13, 1875; University of Pennsylvania Department of Medicine, Philadelphia, 1899; since 1946 professor emeritus of pediatrics at the University of Colorado School of Medicine, where he was a volunteer faculty member since 1911; an associate member of the American Medical Association, serving from 1919 to 1929 as a member of its Council on Scientific Assembly and at one time Secretary, Section on Diseases of Children; specialist certified by the American Board of Pediatrics, and from 1933 to 1945 a member; member and at one time vice-president of the American Pediatric Society; member and past-president of the American Academy of Pediatrics; member of the advisory committee of the Children's Bureau of Maternal and Child Welfare from 1943 to 1946; member of the National Committee on Children in Wartime from 1943 to 1945; served during World War I; served on the staffs of the Children's Hospital, where he was past-president of the visiting staff, and the Colorado General Hospital, where he was chief of pediatrics service and consultant in pediatrics at the Denver Hospital; died Aug. 29, aged 79, of cerebral hemorrhage.

Sauer, William Emil ⊕ St. Louis; born in Evansville, Ill., April 17, 1875; Washington University School of Medicine, St. Louis, 1896; in 1945, on account of his retirement, was awarded the Distinguished Service professorship of otolaryngology, the first appointment of its kind, at St. Louis University School of Medicine, where for many years he was professor of otolaryngology and director of the department; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology, American Laryngological Association, American Laryngological, Rhinological and Otological Society, and the American Otological Society; fellow of the American College of Surgeons; on the staffs of St. Mary's Group of Hospitals, Bethesda Hospital, and St. Luke's Hospital; died Sept. 3, aged 80, of nephrosclerosis and arteriosclerosis.

Kelley, John Bernard ⊕ Worcester, Mass.; born in Manchester, N. H., Aug. 6, 1898; Tufts College Medical School, Boston, 1925; specialist certified by the American Board of Orthopaedic Surgery; fellow of the American Academy of Orthopaedic Surgeons and the American College of Surgeons; member of the Association of Military Surgeons of the United States and the American Association of Railroad Surgeons; past-president of the New York Hospital Alumni Association; served during World War I; on the staffs of the Veterans Administration Hospital in Rutland Heights, Holden (Mass.) District Hospital, Clinton (Mass.) Hospital, Belmont Hospital, and St. Vincent Hospital; died Aug. 7, aged 57, of cerebral hemorrhage.

Daniels, Lewis Ernest ⊕ Detroit; born in Cambridge, Mass., May 12, 1886; Harvard Medical School, Boston, 1920; at one time assistant professor of obstetrics and gynecology at the University of Michigan Medical School in Ann Arbor; specialist certified by the American Board of Obstetrics and Gynecology; member of the Central Association of Obstetricians and Gynecologists; past-president of the Michigan Society of Obstetrics and Gynecology; member of the Detroit Surgical Society; consultant and on the staff of the Herman Kiefer, Grace, and Sinai hospitals; chairman of the department of obstetrics and gynecology, and on the attending staff, at the Woman's Hospital, where he died Aug. 8, aged 69, of acute leukemia.

Goldman, A. Milton ⊕ Rockville Centre, N. Y.; born in Kansas City, Mo., Nov. 1, 1892; Harvard Medical School, Boston, 1917; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; past-president of the Nassau County Society of Ophthalmology; member of the New York Academy of Medicine; director of the department of ophthalmology at the Meadowbrook Hospital at Hempstead; consultant at the Mary Immaculate Hospital in Jamaica, where he was past-president of the board of directors and consultant at the Nassau Hospital in Mineola and Mercy Hospital; died Aug. 26, aged 62, of cancer.

Neblett, Herbert Clarence ⊕ Charlotte, N. C.; born in Lunenburg, Va., Nov. 20, 1887; Medical College of Virginia, Richmond, 1914; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology; for many years served in the regular U. S. Army and in France with the Army of Occupation during World War I; on the staffs of the Good Samaritan and Presbyterian hospitals; chief of the department of ophthalmology at the Charlotte Memorial Hospital from 1941 to 1945; died Aug. 21, aged 67, of coronary occlusion.

Susnow, David Abram ⊕ San Francisco; born April 20, 1906; University of California Medical School, San Francisco, 1930; member of the American Proctologic Society; past-president of the Proctologic Society of Northern California; fellow of the American College of Surgeons; served in the U. S. Naval Reserve during World War II; chief of proctology at the Mount Zion Hospital; active in the development of the Maimonides Hospital and Hebrew Nursing Home, where he served as an officer of the board and the executive committee; review editor of *Proctology;* died July 20, aged 49, of coronary thrombosis.

Mendelsohn, Jacob James ⊕ Chicago; born in 1889; Chicago College of Medicine and Surgery, 1912; clinical professor of medicine at Stritch School of Medicine of Loyola University; past-president of the Chicago Tuberculosis Society; fellow of the American College of Chest Physicians; member of the American Trudeau Society; medical director of the Fox River Sanitarium in Batavia, Ill.; attending physician at Louis A. Weiss Memorial and Columbus hospitals; attending physician at Cook County Hospital, tuberculosis division, from 1912 to 1946; died July 26, aged 65, of coronary thrombosis.

Moriarty, Patrick Maurice ⊕ Chicopee, Mass.; born March 17, 1891; Georgetown University School of Medicine, Washington, D. C., 1913; member of the National Gastroenterological Association and was awarded a certificate of achievement by the organization; served as city physician, welfare department physician, school physician, and medical examiner; at his death was a member of the school committee; veteran of World War I; on the staffs of the Mercy Hospital in Springfield, and Westfield (Mass.) State Sanatorium; died in New England Baptist Hospital, Boston, Aug. 3, aged 64, of postoperative complications.

Dulligan, Peter James ⊕ Brooklyn, N. Y.; born in Worcester, Mass., in 1884; Harvard Medical School, Boston, 1911; fellow of the American College of Surgeons; past-president of the Brooklyn Surgical Society and the Catholic Physicians Guild; for

---

⊕ Indicates Member of the American Medical Association.

many years on the staffs of St. Mary's and Greenpoint hospitals; consultant in surgery at the St. Charles Hospital in Brooklyn, and the St. Charles Hospital in Port Jefferson, N. Y.; named a Knight of St. Gregory by Pope Pius XII in recognition of his work in charities and hospitals; died July 29, aged 71, of carcinoma of the lung.

Fawcett, George Gifford ⊕ South Norwalk, Conn.; born in 1884; Cornell University Medical College, New York City, 1915; fellow of the American College of Surgeons; former vice-president of the Connecticut State Medical Society and past-president of the Norwalk Medical Association; for many years chairman of the board of education; formerly vice-president of the Norwalk Tuberculosis and Health Association; member of the state committee on industrial health; chief medical examiner for Selective Service Board No. 26B during World War II; on the staff of the Norwalk (Conn.) Hospital, where he died Sept. 6, aged 71, of cystitis and congestive heart disease.

Holleb, Herbert Bernard ⊕ Merrick, N. Y.; born in Brooklyn, N. Y., Jan. 3, 1915; New York University College of Medicine, New York City, 1939; certified by the National Board of Medical Examiners; specialist certified by the American Board of Pathology; member of the College of American Pathologists and the American Society of Clinical Pathologists; served as consultant in pathology at the Veterans Administration Hospital in Northport, N. Y., and pathologist at the Huntington (N. Y.) Hospital and the Brunswick General Hospital in Amityville; died in Brooklyn June 28, aged 40, of rheumatic heart disease.

Russell, Walter Adams ⊕ Augusta, Maine; born in Somersworth, N. H., Oct. 14, 1911; Cornell University Medical College, New York City, 1940; interned at the Knickerbocker Hospital in New York City; formerly resident at the New York Hospital and Memorial Hospital in New York City; served during World War II; member of the American College of Radiology; roentgenologist at the Veterans Administration Hospital in Togus; on the staffs of the Augusta State and Augusta General hospitals; for five years on the staff of the Maine General Hospital in Portland, where he died Aug. 13, aged 43, of acute leukemia.

Dessloch, John C. ⊕ Rochester, N. Y.; born in 1882; New York Homeopathic Medical College and Hospital, New York City, 1913; specialist certified by the American Board of Anesthesiology; member of the American Society of Anesthesiologists and the International Anesthesia Research Society; past-president of the Eastern Society of Anesthetists and of the Associated Anesthetists of the United States and Canada; served during World War I; consultant in anesthesiology at the Monroe County Infirmary and the Genesee Hospital, where he died Sept. 7, aged 73, of a cerebral vascular accident.

Turnbull, Samuel Jay ⊕ Colonel, U. S. Army, retired, Washington, D. C.; born June 8, 1886; George Washington University School of Medicine, Washington, 1909; entered the regular Army June 26, 1912; served during World War I; professor of military science and tactics at his alma mater; member of the Association of Military Surgeons of the United States; among his numerous decorations were the Distinguished Service medal and the Legion of Merit; promoted to colonel May 12, 1938; retired Dec. 31, 1947; died in Spray Beach, N. J., July 30, aged 69, of a heart attack.

Phillips, William Linton, Irondequoit, N. Y.; University of Buffalo School of Medicine, 1897; at one time on the faculty of his alma mater; specialist certified by the American Board of Ophthalmology; fellow of the American College of Surgeons; served during World War I; formerly practiced in Buffalo, where he was consultant in ophthalmology at the Millard Fillmore Hospital; ophthalmologist at the Edward J. Meyer Memorial Hospital and the Emergency Hospital of the Sisters of Charity; died in Rochester Aug. 13, aged 83, of arteriosclerotic heart disease.

Alsup, Ace Hill, Temple, Texas; Memphis (Tenn.) Hospital Medical College, 1908; member of the Medical Association of Texas; on the staff of the King's Daughters Hospital; died Aug. 16, aged 80, of a heart attack.

Ambrose, Olney Alphonso ⊕ St. Louis; Barnes Medical College, St. Louis, 1898; on the staff of St. Mary's Hospital, where he died Sept. 6, aged 80, of cerebral thrombosis and arteriosclerotic heart disease.

Balsley, Alfred Wickham, Findlay, Ohio; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1899; served during World War I; formerly county coroner; on the staff of the Blanchard Valley Hospital, where he died Aug. 29, aged 82, of arteriosclerotic heart disease and uremia.

Bennett, Coleman Douglas, Chatham, Va.; University College of Medicine, Richmond, 1905; past-president of the Pittsylvania County Medical Society; member of the Medical Society of Virginia; served during World War I; died Aug. 19, aged 82.

Bissell, Fred Crawford, Akron, Ohio; Cleveland Homeopathic Medical College, 1899; served during the Spanish-American War and World War I; on the staffs of the City, St. Thomas, and People's hospitals; died Aug. 30, aged 83, of cerebral hemorrhage.

Bram, Israel ⊕ Philadelphia; Medico-Chirurgical College of Philadelphia, 1909; died Sept. 7, aged 72.

Caylor, Claude Carlisle ⊕ Washington, D. C.; University of Virginia Department of Medicine, Charlottesville, 1910; formerly associate professor of radiology at the Georgetown University School of Medicine; member of the Radiological Society of North America; died in Salisbury, Md., Aug. 24, aged 67, of coronary occlusion.

Clark, Wallace Henderson, La Grange, Ga.; Medical Department of Tulane University of Louisiana, New Orleans, 1912; fellow of the American College of Surgeons; served during World War I; on the staff of the City-County Hospital, where he died Aug. 30, aged 65, of congestive failure and pulmonary infarction.

Coleman, Alfred Tennyson, Dublin, Ga.; Atlanta School of Medicine, 1910; member of the Medical Association of Georgia; member of the state board of medical examiners; served as state senator; on the staff of the Laurens County Hospital, where he died Sept. 3, aged 71, of cerebral hemorrhage.

Constantinides, Charles Lawrence, Rutherford, N. J.; University of Toronto Faculty of Medicine, Canada, 1903; died Aug. 3, aged 74, of lateral amytrophic sclerosis.

Crawford, Edward Aiken, Miami, Fla.; Chicago College of Medicine and Surgery, 1911; died in the Doctors' Hospital, Coral Gables, June 17, aged 70, of coronary thrombosis.

DeWolfe, Daniel Charles ⊕ Putney, Vt.; University of Vermont College of Medicine, Burlington, 1938; on the staff of the Brattleboro Memorial Hospital in Brattleboro, where he died Aug. 21, aged 48, of multiple sclerosis.

Erni, Harry Edward ⊕ Macon, Mo.; University of Kansas School of Medicine, Kansas City, Kan., 1932; member of the American Academy of General Practice; served during World War II; formerly practiced in Kansas City, Mo., where he was on the staffs of the St. Luke's and Mercy hospitals; on the staff of Samaritan Hospital; died Aug. 23, aged 46, of coronary thrombosis.

Feldman, Harry, Brooklyn, N. Y.; University and Bellevue Hospital Medical College, New York City, 1916; fellow of the American College of Surgeons; on the staffs of the Greenpoint, Caledonia, St. Catherine's, and Maimonides hospitals; died July 27, aged 62.

Frieman, Hyman A. ⊕ Bayonne, N. J.; University and Bellevue Hospital Medical College, New York City, 1929; past-president of the Bayonne Medical Association; served as city physician; on the staff of the Bayonne Hospital, where he died Sept. 19, aged 50, of carcinoma of the colon.

Gilbert, Robert Bacon ⊕ Greenville, Ga.; Atlanta College of Physicians and Surgeons, 1906; died in Piedmont Hospital, Atlanta, Aug. 16, aged 73, of coronary occlusion.

Goodwin, Loranza Dow, Winslow, Ind.; (licensed in Indiana in 1897); died in Evansville Aug. 12, aged 92, of bronchopneumonia.

Haas, Reynold Lavelle ⊕ Ann Arbor, Mich.; University of Michigan Medical School, Ann Arbor, 1938; associate professor of obstetrics and gynecology at his alma mater; specialist certified by the American Board of Obstetrics and Gynecology; member of the Central Association of Obstetricians and Gynecologists; fellow of the American College of Surgeons; past-president of the Michigan Society of Obstetricians and Gynecologists; died in the University Hospital Sept. 20, aged 41, of leukemia.

Holmes, Fred Weber ⊕ Phoenix, Ariz.; Northwestern University Medical School, Chicago, 1942; specialist certified by the American Board of Internal Medicine; interned at the Passavant Memorial Hospital, Chicago, where he served a residency; served during World War II; medical director of the Maricopa County General Hospital; on the staffs of the Good Samaritan, St. Joseph's, and Memorial hospitals; drowned in the Klamath River, near Crescent City, Calif., Aug. 6, aged 38.

Horsfall, Frank Lappin ⊕ Seattle; McGill University Faculty of Medicine, Montreal, Canada, 1903; fellow of the International College of Surgeons and the American College of Surgeons; served during World War I; on the staffs of the Renton (Wash.) Hospital, King County, Doctors, and Seattle General hospitals; died Aug. 24, aged 82, of arteriosclerosis.

Hougland, Walter Louveria, Chicago; St. Louis University School of Medicine, 1905; died Sept. 13, aged 79.

Howard, Charles Earl, San Diego, Calif.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1906; past-president of the Fulton County (Ill.) Medical Society; died Sept. 2, aged 73, of coronary thrombosis.

Irvin, John Shepherd ⊕ Absecon, N. J.; Columbia University College of Physicians and Surgeons, New York City, 1912; served as secretary and later as president of the Atlantic County Medical Society; served during World War I; formerly on the staff of the Atlantic City (N. J.) Hospital, where he died July 25, aged 71, of abdominal cancer.

Kelley, George Myatt, Knoxville, Tenn.; University of Tennessee College of Medicine, Memphis, 1930; interned at Knoxville General Hospital; served during World War II; physician at the Naval Ship Yards of Portsmouth, Va.; died in Maryview Hospital, Portsmouth, Va., Aug. 3, aged 49, of acute myocardial infarction and arteriosclerotic heart disease.

Kelsey, Joel Smith Jr. ⊕ Santa Monica, Calif.; Hahnemann Medical College and Hospital of Philadelphia, 1909; on the staffs of the Santa Monica and St. John's hospitals; served during World War I; died Aug. 15, aged 69, of coronary thrombosis.

Kiess, John Simeon ⊕ Bucyrus, Ohio; Western Reserve University School of Medicine, Cleveland, 1934; interned at the City Hospital in Cleveland, where he served a residency; president of the Crawford County Medical Society; a captain in the Medical Corps of the U. S. Air Force during World War II; died Aug. 19, aged 47, of a cerebral hemorrhage.

Lanford, Walter Bozeman, Columbia, Ala.; Medical College of Alabama, Mobile, 1906; died June 17, aged 70, of coronary occlusion.

Lefkin, Philip ⊕ Long Beach, Calif.; Rush Medical College, Chicago, 1937; member of the American College of Chest Physicians and the American Trudeau Society; fellow of the American College of Surgeons; served during World War II; consultant, Community Hospital in San Pedro; on the staffs of the Harbor General Hospital in Torrance, the Community and St. Mary's hospitals in Long Beach, and the City of Hope National Medical Center, in Duarte, where he died Aug. 4, aged 46, of carcinoma of the thyroid.

Long, James U., Knoxville, Ill.; Missouri Medical College, St. Louis, 1888; died in Galesburg (Ill.) Cottage Hospital Aug. 15, aged 91, of lymphatic leukemia.

Long, Thomas Henry ⊕ Tacoma, Wash.; Creighton University School of Medicine, Omaha, 1907; for many years coroner; on the staff of St. Joseph's Hospital; died June 20, aged 79, of myocardial infarction and coronary sclerosis.

Longsdorf, Harold E. ⊕ Mount Holly, N. J.; College of Physicians and Surgeons, Baltimore, 1910; bank president; died in Burlington County Hospital Aug. 24, aged 69, of carcinoma of the head of the pancreas with metastasis.

McCradie, Andrew Ross ⊕ Chicago; University of Illinois College of Medicine, Chicago, 1920; on the staff of St. Bernard's Hospital; died in Chicago Heights Sept. 8, aged 61, of Hodgkin's disease.

McElroy, John Walter, Fitzgerald, Ga.; Emory University (Ga.) School of Medicine, 1915; served overseas during World War I; died Aug. 6, aged 64, of cerebral hemorrhage.

Meschter, Eugene F. ⊕ Stamford, Conn.; Medico-Chirurgical College of Philadelphia, 1898; member of the Industrial Medical Association; served as president and secretary of the Stamford Medical Society; formerly medical examiner for the Pennsylvania Railroad; on the consulting staff of St. Joseph's Hospital; on the courtesy staff of the Stamford Hospital, where he died Sept. 1, aged 76, of arteriosclerotic heart disease and cancer.

Mitchell, John Ira ⊕ Haleyville, Ala.; Birmingham Medical College, 1912; formerly county health officer; died Aug. 24, aged 77, of coronary occlusion.

Samuel, Jacob ⊕ Chicago; Northwestern University Medical School, Chicago, 1920; staff member of South Chicago Community Hospital; died Sept. 19, aged 59, of coronary occlusion.

Seropian, Kegham, New York City; American University of Beirut School of Medicine, Syria, 1911; member of the Medical Society of the State of New York; died Sept. 9, aged 68, of coronary thrombosis.

Sewall, Chester Durbin, Trinity Center, Calif.; Cooper Medical College, San Francisco, 1906; at one time on the staffs of St. Mary's and Stanford University hospitals in San Francisco; died Aug. 26, aged 73.

Shaw, Thomas Bond ⊕ Worcester, Mass.; Dartmouth Medical School, Hanover, N. H., 1893; died in Danforth, Maine, Aug. 29, aged 88.

Slaughter, Emma Elizabeth Young ⊕ Lowell, Mass.; Tufts College Medical School, Boston, 1898; died July 17, aged 81, of carcinoma.

Smith, Lucius Ernest ⊕ Louisville, Ky.; Johns Hopkins University School of Medicine, Baltimore, 1915; member of the American Trudeau Society; at one time medical missionary of Spanish Guinea, West Africa; served as executive secretary of the Kentucky Tuberculosis Association; died in the Kentucky Baptist Hospital Aug. 30, aged 76, of arteriosclerotic heart disease and aortic stenosis.

Storer, Elroy Templin, Middletown, Ohio; Ohio-Miami Medical College of the University of Cincinnati, 1911; member of the Ohio State Medical Association; past-president of the Butler County Medical Society; president of the Middletown library board; member and past-president of the staff, Middletown Hospital; past-president of the Civic Association, Lions Club, Y.M.C.A., and the board of health; died Aug. 17, aged 71, of arteriosclerotic heart disease.

Torell, Gerhard John ⊕ Los Angeles; Northwestern University Medical School, Chicago, 1916; specialist certified by the American Board of Otolaryngology; an associate member of the American Medical Association; on the staff of the Hollywood Presbyterian Hospital, where he died Sept. 2, aged 62, of uremia and arteriosclerosis.

Verberkmoes, John Martin, Kooskia, Idaho; Rush Medical College, Chicago, 1904; member of the Oregon State Medical Society; died in Mercy Hospital, Roseburg, Ore., Sept. 1, aged 76, of arteriosclerotic heart disease.

Watson, Joseph W., Baton Rouge, La.; Atlanta College of Physicians and Surgeons, 1906; member of the Louisiana State Medical Society; for many years coroner of East Baton Rouge Parish; on the staff of Our Lady of the Lake Sanitarium; died Sept. 8, aged 79, of coronary thrombosis.

Werner, Robert George, Kenosha, Wis.; Kentucky School of Medicine, Louisville, 1898; died Sept. 3, aged 84, of arteriosclerotic heart disease.

FOREIGN LETTERS

AUSTRIA

Social Security Bill.—The extraordinary plenary session of the Austrian Chamber of Physicians held on Sept. 7, 1955, examined carefully the present results of the negotiations concerning the proposed general social security bill (ASVG) that led to the physicians' strike in August (*J. A. M. A.* **159**:800 [Oct. 22] 1955) and found that a satisfactory regulation had not been reached concerning five points. In the first place, restrictions on self-employed persons in general trades and self-supporting farmers entitled to health insurance benefits have been eliminated so as to permit every industrialist and every owner of large agricultural estates to participate in health insurance benefits. The employers, not already insured with one of the master health insurance funds, will be entitled to benefits from the regional health insurance funds, and the self-supporting farmers will be entitled to benefits with the agricultural health insurance funds. Since income limits are only in force with respect to master health insurance funds, the physicians propose that a new paragraph should be added to the effect that the continued insurance with the obligatory health insurance funds ends when the insured person starts to work as a self-employer, since all self-employers can be insured with master health insurance funds.

Secondly, the legal regulation that the total contract should contain a limit for the fees paid by the carriers of health insurance for medical services means that the risk of health insurance is shifted to the shoulders of the physicians by the ASVG. The physicians must insist that the bill be revised to eliminate this feature. Thirdly, the stipulation that the health insurance funds may provide for the examination of the insured patient in the hospital by a control physician, provided that the hospital management agrees, is objectionable, because it seriously impairs the patient's confidence in the hospital physician and the physician's personal responsibility to the patient under his care. The physician must insist that control by the insurance funds be limited to inspection of the clinical records. Fourthly, the physicians must insist that the request for establishing a contract by the Federal Arbitration Commission should not be limited to the Austrian Chamber of Physicians but that such a request could also be made by a regional medical society. In the fifth place, the physicians object to the contract monopoly of the Main Combine of the Austrian Carriers of Social Insurance, because they consider this a way of strengthening the preponderance of the insurance funds and thereby the Socialist Party, which, the physicians fear, would operate to the disadvantage of the cooperation between the carriers of health insurance and the medical profession.

The most critical problem of the Austrian medical profession at present is the oversupply of physicians in Austria as a result of the war and postwar conditions. In a few years this situation will right itself, but, until then, all controlling factors, particularly the health insurance, must aid in overcoming this state of emergency. The proposal by the Main Combine that physicians who are making an adequate living should renounce their contract with the insurance funds, at least temporarily, in favor of the younger physicians is impracticable, because it would destroy the confidence that has continued for years between the insured person and the physician of his choice. According to the proposal of the Chamber of Physicians, new contracts should be awarded to those physicians who have not yet been able to make an adequate living. The Chamber of Physicians, therefore, submitted a carefully prepared plan that would provide new contracts for 500 physicians in the course of 1956, as well as in 1957. The insurance carriers accepted the proposal of the Chamber of Physicians for 1956 only. These points, concerning which so far no satisfactory solution has been reached, are considered by the medical profession to be as important for the insured as for the physicians.

BRAZIL

The Training of Specialists.—In the United States, there is one physician to every 700 inhabitants, and, in Brazil, one to every 7,000. For this reason foreign physicians have been permitted to practice here. Such permission is now granted only to those whose diplomas and credentials have been examined and approved by the federal Brazilian universities. There is still no legislation that regulates medical specialization, and specialists practicing here have either had a short residency in a hospital in a foreign country or an advanced course in a foreign medical school. Either method has the disadvantages that it involves great expense and that it is almost impossible for a student to get the maximum benefit from a course without a thorough knowledge of the language of the country where the course is given. For this reason several medical centers in Brazil have offered occasional, short courses given by specialists from other countries. The attendance at these courses has been enormous. The economic problems involved in studying a specialty abroad have been somewhat overcome by such organizations as the International College of Surgeons, through their system of exchange between countries. There is an urgent demand, however, for a school of medical specialists in Brazil. In Rio de Janeiro, such a school has been started, but it still does not meet the demand. When this dream of the Brazilian doctor becomes a reality, then the interchange of professors will mean greater mutual benefit to the members of the profession.

Achalasia of the Duodenum and the Jejunum.—Dr. Luis Carlos Fonseca in *Arquivos dos Hospitais da Santa Casa de São Paulo* (**1**:179 [July] 1955) stated that the duodenum could be considered as having normal function in only 5% of patients. In the rest, different types of dyskinesia exist, especially in the second and third portions of the duodenum. In 75% of patients there is a disturbance of tonus and of motility, with stasis proximal to the involved points. Megaduodenum occurs in about 30% of the patients with megaesophagus, but, as in megaesophagus and megacolon, different forms can be observed, which would explain the different symptoms observed in different patients. Three types of megaduodenum are (1) megalobulbus without enlargement of the other duodenal segments, (2) enlargement of the duodenal arch, and (3) total megaduodenum, with a gigantic duodenal arch. The jejunum and ileum show disturbances that are probably explained by an impairment of the Meissner and Auerbach plexuses. The most severe impairment involves the whole intestine. In 17.5% of the cases there was segmented dystonia, with jejunal hypotonia and ileal hypertonia. Jejunal normotonia, or hypertonia with ileal hypotonia, was found in only 7.5%. Motility was normal in all the small intestine in 20% of the cases, slowed in 12.5%, and accelerated in 25%. In the remaining 42.5% there was segmental motor imbalance. There was no correlation between disturbed tonus and disturbed motility. In 62% of the patients there were also disturbances of autoplasty of the mucosa. Only one case of megajejunum was found among more than 200 patients with achalasia.

Sleep Treatment in Psychiatry.—In July, Prof. A. C. Pacheco e Silva reported to the Medical Academy of São Paulo that he used sleep therapeutically in 40 mental patients in all of whom other treatment had failed. Using chlorpromazine and Phenergan he obtained improvement in 19; 14 became calmer and easier to approach for psychotherapy; and 7 remained unchanged.

Varicose Veins.—According to the surgical department of the University of São Paulo (*Seara Medica,* vol. 10, April, 1955) surgical treatment of varicose veins should be determined by the location of the valvular insufficiency. Although different methods are available, the surgical treatment must be based on the ligature and resection of one or both main trunks of the

---

The items in these letters are contributed by regular correspondents in the various foreign countries.

saphenous veins and its branches, but there is some disagreement regarding the treatment of the distal segments. The methods used for this treatment are (1) injection of a sclerosing solution; (2) wide resection of the trunk and varicose branches; (3) selective resection of the patent communicating branches; and (4) stripping of the vein. Each method has its advantages and disadvantages, its indications and contraindications. No one method should be used routinely. Sometimes two of the methods are combined.

ENGLAND

Coroner Criticizes Hospital Staffing.—A patient with multiple injuries was taken one weekend to a small hospital, where the physician in charge was a recently qualified house surgeon, the resident surgeon being away. The house surgeon, realizing the seriousness of the patient's injuries, arranged for his transfer to a larger hospital staffed by consultants, but the patient died soon after arrival. At the inquest the coroner severely criticized the system whereby an inexperienced physician is allowed to make important medical decisions such as this. He said that he hoped for a return to the conditions that existed before the introduction of the National Health Service, when there was always someone of experience at a hospital to give emergency treatment. For some years the mere possession of a medical degree has not been recognized in law as sufficient evidence of competence for the performance of routine hospital duties, and this view has often been emphasized since the introduction of the National Health Service. Thus, it was recently held (*All-England Law Reports* **2**:125, 1952) that a newly qualified physician was not necessarily sufficiently responsible to give certain anesthetic agents, and other recent legal findings, as well as the one under discussion, suggests that a newly qualified physician is not necessarily competent to decide on the disposal of patients admitted to the hospital. Hospitals have been conscious of this and tend to appoint residents of some seniority to admit patients and see them in the casualty departments. Actually there is great difficulty in filling these posts owing to the frequency of litigation and the subsequent appearance in the courts of the physician charged with negligence. Even if this is not proved, both hospital and physician receive unwelcome publicity. The junior resident was once regarded with respect by patients and hospital authorities alike; it seems that this no longer obtains. It is possible that the coroner meant to imply that emergency treatment in hospitals was better before the introduction of the National Health Service than it is now. There is at present a shortage of residents, particularly in outlying areas where attempts have been made to improve efficiency. Residents, however, flock to the large hospitals, with the result that those at the periphery are understaffed. There is not less skill, but uneven distribution. At the hospital in question there are more specialists on the staff than there were before 1948.

Consultants and Hospital Health Services.—A meeting of the Joint Consultants Committee was held at the Royal College of Physicians in July to consider some aspects of the working of the National Health Service in the hospitals. It received a report of a subcommittee, which stated that, as adequate recruitment of a hospital medical staff was a pressing need, the matter of salary ranges could not be ignored as the Ministry of Health wished to do. The subcommittee ruled that the rigid training ladder should be abolished and appointments made according to the needs of the hospital. At present a junior member of the medical staff who does not start on the right rung of the ladder never moves up. The aspirant to specialist status should secure what he considers useful training appointments and should not be penalized on account of age or by the operation of a rigid time factor. Appointments should be renewable in competition and not terminated at a set time. Posts comparable with that of senior resident might be upgraded to retain promising physicians, pending opportunities of appointment to consultant vacancies. The committee also won a concession for mental health physicians, who, according to present regulations, must retire at the age of 60. The age has now been extended to 65, if the physician so desires. Owing to the danger of litigation, hospital authorities were tending to discourage the practice of allowing students to get additional hospital experience during their vacations. The committee deplored this view and stated that promising students should be given every opportunity to gain additional experience.

Age and Sex in Coronary Artery Disease.—Dr. Fitzgerald Peel has studied the age and sex incidence of 865 patients with attacks of coronary artery disease (*Brit. Heart J.* **17**:319, 1955). In men the incidence reaches a peak at age 55 to 59 and thereafter falls steeply. In women the rise in incidence is slow and steady from age 40 to 70, and there is no ultimate fall in incidence comparable with that seen in men. In women of all ages one-half of the attacks result in infarction; in men under 50 one-half also result in infarction, but after this age 75% of them produce infarcts. This would suggest that in men over 50 the ability to provide a collateral coronary circulation is not as good as in women. The case fatality rate in men rises steadily from 5% at ages under 44 to 35% at ages over 65. In women the case fatality rate is about 25% in all age groups, rising only slightly as age advances. The total mortality from cardiac infarction in women of all ages is almost double that in men. The long-term prognosis was studied in 240 survivors of myocardial infarction and 129 survivors of attacks of cardiac ischemia. The best expectation of life was found in men, aged 50 to 54, who fared better than younger men. The worse expectation of life was at age 60 to 64. In women the expectation was best at ages below 50 and diminished progressively as the age of onset increased. The first four weeks after cardiac infarction covered the most dangerous period; 40 out of 45 deaths took place within the first 28 days, and most of these were in the first fortnight. Most of the deaths occurred in a second or subsequent attack or from cardiac failure. These figures relate to patients treated before the introduction of anticoagulants.

Coronary Sclerosis.—The association of coronary sclerosis with a disturbance of lipid metabolism is now fairly well recognized. By far the greatest concentration of cholesterol is attached to the alpha and beta globulin fractions, which with attached lipids are known as alpha and beta lipoproteins. Oliver and Boyd have investigated the serum lipoprotein patterns in coronary sclerosis, comparing them with those seen in normal subjects (*Brit. Heart J.* **17**:299, 1955). The controls were 50 normal healthy men, matched for age, obtained from university and hospital staffs and from inpatient wards, where none had any history of atherosclerosis, cardiac, metabolic, renal, or hepatic disease. The test subjects were 50 patients with electrocardiographic confirmation of myocardial infarction, 4 with xanthoma tuberosum multiplex, one with xanthoma of the tendon, and 2 with "essential hyperlipemia." The alpha and beta lipoproteins were separated by a filter-paper zone electrophoresis microtechnique, followed by serial cholesterol estimations. The ratio of cholesterol attached to the alpha lipoprotein fraction to that attached to the beta lipoprotein fraction (the $\alpha:\beta$ ratio) was significantly lower in patients with coronary sclerosis than in normal subjects. The average age of the patients was 41, and nearly all exhibited hypercholesterolemia. The increase in cholesterol on the beta lipoprotein fraction was about 20%. The authors believe that the electrophoretic separation of lipoproteins may become one of the standard procedures in any future attempt at screening a population, with the object of diagnosing coronary sclerosis before it is manifested clinically.

Treatment of Blood Disorders.—In 1952 and 1953 the hematology panel of the Medical Research Council reported on its experience with corticotropin and cortisone in a variety of hematological conditions. Favorable responses, including complete remissions, were obtained in a high proportion of patients with acquired hemolytic anemia and idiopathic thrombocytopenic purpura, but the response in other hematological conditions was less favorable. The good effects of treatment were usually temporary. A third report has now been issued by the panel, embodying the results of two further years' work (*Brit. M. J.* **2**:455, 1955). The dosage tended to be higher than previously, most patients receiving at least 200 mg. of cortisone a day initially. The present findings reinforce the previous conclusions that in hematological conditions only those with acquired hemolytic anemia and idiopathic thrombocytopenic purpura derive prolonged benefit from the administration of cortisone or corticotropin. Patients with these conditions can often be relieved of their symptoms for months or years by continuous administration of the hormones. The importance of adequate dosage is stressed. The dosage of cortisone was 50 to 100 mg. daily and that of corticotropin up to 100 mg. daily. Eighty-one per cent of the patients with hemolytic anemia and 85% of those with purpura showed a partial or complete response to treatment. In acute leukemia both hormones induced temporary remissions in about half of 49 patients treated, and this form of treatment compared favorably with others. The remissions, however, were not of long duration, and few patients survived for more than a year. The administration of cortisone and corticotropin did not produce any favorable response in other hematological conditions treated.

Cortisone and Aspirin.—The second report of a joint committee appointed by the Medical Research Council and the Nuffield Foundation on the comparison of the therapeutic efficiency of cortisone and aspirin in the treatment of chronic rheumatic diseases appears in *British Medical Journal* (2:695, 1955). Sixty-one patients with polyarthritis of the rheumatoid type affecting at least four joints and causing bilateral involvement of hands or feet, with a duration of not less than three and not more than nine months, were studied for two years, 31 being treated with 1 to 8 gm. of aspirin daily and 30 with 75 to 80 mg. of cortisone daily. The allocation was made randomly. Both groups received physiotherapy and splinting when indicated. At the end of the first year the results of treatment in the two groups were almost identical. Improvement in functional capacity was the same in both groups, and improvement in disease activity, joint tenderness, range of movement, strength of grip, and sedimentation rate showed similar improvement in both. This improvement in both groups was maintained throughout the second year. At the end of the two year test period 65% of the cortisone-treated patients and 74% of the aspirin-treated group showed radiological evidence of erosion. This difference was not significant. At the end of the first year hemoglobin level and blood sedimentation rate in the cortisone-treated group showed some improvement over those in the aspirin-treated group, but this difference had disappeared by the end of the second year. There was greater reduction in joint tenderness in the aspirin-treated group, but the difference between the two groups was not significant.

Anticoagulant Therapy.—In spite of the experimental data indicating that damage to the fetus might result from the use of anticoagulants in pregnancy, these have often been used for the treatment of thrombotic disease in pregnant women. They have been considered safe if the prothrombin index is adequately controlled. Gordon and Dean, however, have shown that fetal catastrophes can occur even with this apparent safeguard (*British M. J.* 2:719, 1955). They report the fetal death of twins after the mother had received therapy with ethyl biscoumacetate for a deep femoral thrombosis during her pregnancy. Use of the drug was discontinued shortly before labor. The first twin was stillborn, although there was no reason to anticipate this, and the second died 13 days after birth. At autopsy both showed signs of hemorrhages into the brain and elsewhere. Death was attributed in both cases to multiple hemorrhages produced by anticoagulant therapy administered to the mother. Labor had been uneventful, and there was no evidence of the so-called hemorrhagic disease of the newborn infant. The authors conclude that the danger to life of a woman with antenatal thrombophlebitis is not sufficiently great to warrant the routine use of anticoagulants, because of the danger to the fetus. They should not be used in the last four weeks of pregnancy unless the patient has multiple pulmonary emboli in which case the risk to the fetus has to be taken.

Structure of Insulin.—Dr. F. Sanger and his co-workers (*Biochem. J.* 60:541, 1955) report that the insulin molecule consists of 17 amino acids, each being present one to six times, giving a total of 48 amino acid units. The molecule has an empirical formula of $C_{254}H_{377}O_{75}N_{65}S_6$, a total of 777 atoms per molecule, and a molecular weight of 5,733.5. The authors believe that insulin is composed of two straight chains containing 21 and 30 amino acid units, linked by the sulfur atoms of two cystine residues. Neither tryptophan nor methionine is present in the insulin molecule. Arginine, isoleucine, lysine, proline, and threonine occur in the molecule once; histidine occurs twice; and there are three units each of aspartic acid, alanine, cystine, glutamine, phenylalanine, and serine. Leucine occurs in the molecule six times, valine five times, and glutamic acid, glycine, and tyrosine four times each. There are minor differences between the glycyl chains in insulin from different sources. In bovine insulin alanine, serine, and valine are in the 8 to 10 position in the 21 amino acid chain, whereas in porcine insulin threonine, serine, and isoleucine occupy this position. The polypeptide ring resembles that found in oxytocin and vasopressin, which have now been synthesized at Cornell University, Ithaca, N. Y. Much of the structure of insulin has been elucidated with the help of x-ray crystallography.

Coal Gas Poisoning.—The number of deaths due to accidental coal gas poisoning has been about 500 annually in England and Wales, and the figure is slowly rising. The latest figure available is 591. Most of the victims are older people, the incidence over 60 years of age being 10 times what it is under 60. Dr. Keith Simpson, the pathologist, attributes most of the deaths to illness, carelessness, ignorance, or mechanical defects. The science committee of the British Medical Association has now set up a subcommittee, which includes Dr. Simpson, to study the problem of accidental death and ill-health from coal gas poisoning. The subcommittee will deal first with the prevention of accidents in the home and then with ill-health caused by coal gas. Accidental coal gas poisoning in industry is rare and under constant study by industrial hygienists. It has been suggested that an obnoxious substance such as mercaptan be added to domestic supplies of coal gas, as is the usual practice in the United States, but in Britain there are apparently legal objections to this. Safety devices have also been proposed by the gas industry and the Ministry of Fuel and Power, such as adding to gas cookers pilot lights that would light up if the gas were not fully turned off.

Too Few Beds.—According to the Emergency Bed Service's Annual Report (1955), there are too few hospital beds in certain parts of London for the population there. It is most distressing to have to insist on the admission of patients to these hospitals when they are already full. The report also deplores the steadily rising number of patients who have to be admitted to hospitals through "medical referees." These are regional medical officers of the hospital boards, and they have been inquiring into why hospitals have refused urgent cases at first request from the patient's general practitioner.

SWITZERLAND

Cancer.—A consultant group met in Geneva to advise the World Health Organization on the ways in which it could effectively assist and complement national efforts against cancer. The consultants agreed that the World Health Organization could aid these programs in the ways listed below.

Dissemination of Information and Statistics on the Prevalence of Cancer.—Data are at present not available from a number of countries. Statistical information, even though imperfect, can often indicate the presence of problems requiring further investigation in those parts of the world where cancer has not yet been fully studied. The organization could undertake, as a continuing activity, the gathering and publication of statistics on the prevalence of different kinds of cancer from the various countries, particularly those where cancer services are not yet well developed. This was especially important in places where conditions were changing rapidly and the incidence of the disease was apparently changing also.

Establishment of International Standards and Definitions of the Various Types of Cancer.—There is a need for international agreement on the criteria for recognizing the many different varieties of cancer. The World Health Organization should therefore, in consultation with the International Union against

Cancer and other appropriate bodies, set up a group of experts to examine this problem with a view to establishing international standards and definitions. Furthermore, the World Health Organization could help interested laboratories and specialized workers to obtain specimens of different cancers corresponding to international standard definitions. Laboratories with special experience in the matter would be asked to establish and maintain reference collections of material agreed by the World Health Organization group of experts to be the accepted standard in each case.

Encouragement of Research.—Statistics reveal many challenging instances of cancer prevalence, apparently associated with social, racial, and environmental factors. Investigation of such problems is important in communities where social change is rapid. It should be a particular function of the World Health Organization to identify and define suspected cancer problems throughout the world, with the hope that this may furnish important indications on the cause of the disease. Certain cancer research problems could be more easily studied if the countries concerned combined their efforts. The World Health Organization might be able to assist in bringing about such coordinations; however, it should maintain its established policy of stimulating rather than engaging in research.

Assistance in Training Cancer Workers.—The growth in medical and health services taking place or to be expected in the near future in many countries will require corresponding arrangements to deal with cancer. The World Health Organization's role would be to provide the best available guidance to such countries and to assist them in training their nationals in work against cancer. This may best be done by giving fellowships to enable national workers to study and gain experience abroad for sufficiently long periods of time and by providing consultants having a broad knowledge and experience in establishing and developing cancer services on request. The organization has so far granted 25 fellowships for studies in cancer and has sent a cancer consultant to assist Iran in establishing and developing a cancer center.

Coordination and Liaison.—In expanding its program, the World Health Organization will cooperate closely with the International Union against Cancer; the United Nations Educational, Scientific, and Cultural Organization, which is planning a program of fundamental research on cell growth; the International Labour Organization, which is concerned with the occupational health problems connected with carcinogens; and the Food and Agricultural Organization, which is investigating the problem of additive foods. The World Health Organization could also assist by expanding its library and reference services in the field of cancer, particularly in regions other than Europe and America.

World Health Organization Fellowships.—According to recent statistical information on World Health Organization fellowship awards in Europe, more than 2,000 have been granted. The typical development of a fellowship is presented below. At the request of the government concerned, the World Health Organization arranges and finances study abroad for an experienced health worker, who after completing the period of study may be expected to make a definite contribution to the improvement of health at home. A sample analysis of 140 previous fellowships shows that such a contribution was made in 131 cases. Of all these fellowships granted to European health workers up to the end of 1954, 56% were in the field of health organization and services, 24% in communicable diseases, and 20% in clinical medicine and education. Though the incidence of communicable diseases has progressively declined in Europe and though the immediate postwar threat of widespread epidemics was successfully overcome, the yearly percentage of fellowships awarded for advanced training in communicable disease control has grown from 15% in 1947 to 33% in 1954. This is a reminder that satisfaction about the state of health in European countries is out of place and that greater and greater refinement of techniques is required in order to reduce communicable diseases still further. The percentage of fellowships in clinical medicine and education, on the other hand, has decreased steadily year by year from over 50% in 1947 to 13% in 1954. As the war-damaged countries reestablished their medical schools, the need for study abroad in these subjects decreased. At the same time, the number of European fellows studying outside Europe has dropped from 45% in 1947 to 10% in 1954, a sure sign that training facilities in Europe have made great strides since the setback brought about by the war. The World Health Organization fellowship program is consistent with the realization that in international health work it is more profitable to stimulate national energies than to attempt to make a present of health. During the period from 1947 to 1954, 82% of European fellowships were financed under the regular World Health Organization budget, 15% under Technical Assistance, and 3% by the United Nations International Children's Emergency Fund.

Infantile Diabetes.—Since 1948, Prof. G. Fanconi of the university pediatric clinic of Zurich has been giving his infant diabetic patients a normal or unrestricted diet, and they have to be hospitalized only exceptionally. They are seen as outpatients once a month. Because of the danger of tuberculosis, all diabetic children with a negative reaction to tuberculin are vaccinated with BCG. The children are happier on the free diet and the effect on their growth is excellent. Daeppen studied 60 diabetic children receiving a normal diet. They were compared with 17 children who had received a diet of fruits and vegetables poor in proteins but who no longer had ocular or renal disturbances. The normal diet did not significantly increase the need for insulin. The dose had to be diminished in 3 of 17 patients and increased in 5, but in 9 no change was required. In most patients growth and weight gain were accelerated on the normal diet. The incidence of coma and precomatose states was decreased about 50%. Fanconi believes that, until it can be demonstrated that normal diet increases the possibilities for complications in the eye and kidney, administration of a normal diet is justified. It enables the patient to lead a life that is close to normal. When one of his patients must be hospitalized, Fanconi applies the following principles. After the child recovers from coma or a precomatose state, he is given for several days a diet of fruit and vegetables similar to that used in the 1930's, except that he is then given a certain quantity of normal proteins. The patient is first treated with normal insulin, one to three times a day according to his need, and soon storage insulin is used. When the patient is discharged, the parents are instructed not to weigh the food but not to give too much. Fruits and vegetables should be given in abundance, while denatured carbohydrates, especially sugar and fine flour, should be restricted. Fat is also restricted. Meat and an egg must be given at least once a day. A good test for the condition of a diabetic patient is determination of the fasting blood cholesterol level; it should not be elevated. The young patient should be allowed to develop with the most normal conditions possible.

Effects of Animal Health on Man.—The meeting of the Advisory Group on Veterinary Public Health was the first international meeting to deal almost exclusively with administrative and educational problems arising out of animal health and its effects on man. Among the nine members of the meeting was Dr. James H. Steele of Atlanta, Ga. The group stated that technical knowledge now available is not everywhere applied with sufficient effect, partly because veterinarians often work in isolation and do not always play a sufficiently important role in public health services. Greater cooperation between physicians and veterinarians was recommended. Food hygiene should go beyond mere police action. Campaigns now in operation to eradicate in animals diseases transmissible to man, particularly bovine tuberculosis, brucellosis, hydatidosis, and rabies, should be strengthened. In Germany, for example, one human case of tuberculosis in 10 is caused by bacilli of the bovine type. In other countries with widespread tuberculosis in cattle, a similar figure is thought to obtain, but accurate information is lacking because laboratory typing of the bacilli is not carried out. Today, cattle in Denmark, Finland, Norway, and Sweden are almost free of tuberculosis. If present campaigns are continued, Sardinia should be free in two years, Great Britain in about five, and Germany in five to eight years. By that time, Germany should also be free of brucellosis. The group strongly condemned popular statements that the presence of a few tubercle bacilli in milk is not so bad because this confers some immunity.

Painless Childbirth.—In 1951, Dr. Lamaze of Paris reported on the Soviet method of psychoprophylaxis in childbirth and applied it on a large scale in the Belleville Metal Workers' Clinic of Paris. His results were so good that they were soon disseminated throughout France and abroad. Some distrust persisted, however, because of the political propaganda surrounding the method. At a recent meeting of the Geneva Medical Society, Prof. H. de Watteville, of the International Federation of Gynecology and Obstetrics, reported on his experiences with obstetric analgesia. He did not try Read's method because of its unsatisfactory results. This method requires complete relaxation, which is difficult to obtain. If it is obtained, the parturient simply undergoes childbirth in a purely passive sense; she does not collaborate. Dr. Geisendorf then reported what he had seen in Dr. Lamaze's clinic. It is hard to see how childbirth could be painless, after the medical profession has been trying for so long to combat this supposedly physiological pain by means of more and more ingenious anesthetics. According to Pavlov, the cerebral cortex conditions the final form of pain perception, while the environment, through its influence on the cortex, modifies cortical function; thus women are conditioned to pain by the tradition that teaches them that childbirth is necessarily accomplished by pain. Uterine pains, like those in other parts of the body, are capable of being conditioned. Between the cortex and the subcortical centers there is reciprocal induction, and it is necessary to reinforce cortical activity by positive conditioning, which is supplied by the preparatory lessons, in order to intercept the interoceptors. The conclusion is that physiological delivery can take place without pain if the parturient, through her prior conditioning, directs the process through active participation. Many psychological factors explain the success of this new method. The slogan "childbirth without pain" has a great psychological effect on the masses. Group psychology also has an effect, in that there is emulation between the six women who are prepared simultaneously.

Instruction of Future Mothers.—The instruction of future mothers begins in the seventh month of pregnancy. These lessons do not take the place of regular medical services. The instructor is a physician, and his assistant is a psychologist with special training in this type of preparation. The classes are conducted in a simple, clear language, and the word "pain" is never mentioned but is replaced by "contraction." There are six women in each class, and each lesson lasts 45 to 60 minutes. The first lesson, conducted by the obstetrician, consists in his getting to know the patients and putting them at ease; then follows a simple lecture on fertilization and anatomy and physiology of normal pregnancy. The second is given by the psychologist and deals with the value of respiration adapted to different phases of the birth process. The psychologist also gives the third lesson, which is about education of the muscles and nerves so that they can be contracted or relaxed at will. The women are told how the exercises prescribed achieve the positively conditioned reflexes that permit painless childbirth. After the second lesson the pupils are expected to repeat the exercises at home. In the fourth lesson, the physician explains the various stages of the birth process and the behavior required of the laboring woman in each of them. In the fifth lesson, the psychologist speaks on the phase of dilatation and the attitude to adopt during it. In the sixth, he explains the effort to be made during the expulsive phase. Of the 108 women who have followed this program since November, 1954, 50 have been delivered to date, and 37 of them have benefited greatly; 12 had no pain at all, and 25 had some pain but declared that their delivery had been easy. Of the rest who obtained poor results, all gained some benefit from their preparation, and there was not a single case of complete failure. Dr. Geisendorf stated that the expulsion was something extraordinary to see for an obstetrician used to the usual form of birth; there was complete relaxation of the perineum and the women were able to raise themselves without effort to see their babies appear. All women are prepared in the same manner, but, if complications occur, traditional methods must be resorted to.

Dr. Geisendorf, who comes from an old Geneva family that could hardly be suspected of having pro-Communist sympathies, has declared his enthusiasm for this method in view of the advantages to both mother and child. He also thinks that the profession of midwifery will stage a comeback, because it will have a much greater psychological influence than formerly. In Lausanne, the government has given official sanction to the psychoprophylactic method in childbirth. On Sept. 5, a credit of 2 million Swiss francs was obtained from the legislature for the creation of a special department in the maternity ward of the Cantonal Hospital of Lausanne, a department for directed delivery according to Pavlov's method. Thus, after a long period of distrust, Swiss obstetricians have indicated that they want to adopt this new method of delivery.

Prednisone (Metacortandracin).—Prof. G. Bickel of the university medical clinic at Geneva has reported (*Schweiz. med. Wchnschr.* 85:859, 1955) on 13 patients treated for 8 to 140 days with a total dose of between 0.12 and 2.4 gm. of prednisone (metacortandracin). In progressive rheumatic polyarthritis, the results were definitely superior to those obtained with corticotropin or cortisone; an almost immediate sense of well-being, rapid and more complete decrease of pain, more or less complete liquidation of periarticular tumefactions, and return of function occurred. The relaxation thus obtained was accompanied by a dramatic transformation of the humoral status. The sedimentation rate fell in five days from 82 to 4 mm. per hour in a patient who no longer reacted well to the daily administration of 75 to 100 mg. of cortisone. Anemia was also promptly corrected, suggesting that the product has a direct stimulating effect on the hematopoietic system. The drug had less effect on electrolyte balance than did corticotropin and cortisone. It provoked almost no water retention, but, after intensive and prolonged administration, a slight elevated urinary excretion of potassium was noted. There was also excessive elimination of nitrogen, which suggests the presence of intensified cellular catabolism. In view of this, all patients receiving a daily dose of prednisone greater than 25 mg. should receive a diet rich in proteins and a small amount of potassium for replacement. The other side-effects of cortisone, especially manifestations of adrenal cortical hyperfunction, appeared in about half the patients treated with prednisone in moderation. When the daily dose exceeded 25 mg., it was common to note euphoria, agitation, and insomnia or, more rarely, fatigue and depression. Unfortunately, one important side-effect must be attributed to prednisone: it is hard on the digestive tract. About a third of the patients treated experienced gastralgia that was apt to be tenacious and acquired a clearly ulcerous character in from 5 to 10% of them. A hemorrhagic syndrome may be superimposed on the painful one; it may appear without prodromal signs in the form of hematemesis or melena with the possibility of death. Prednisone is no better than the other corticosteroids in that its therapeutic effect begins to wear off after a time, necessitating either increase of dosage, which is not without its drawbacks, or acceptance of progressively less benefit.

In bronchial asthma it acts just like cortisone or corticotropin, but the patient prefers it because he does not have to take a salt-poor diet. Lipid nephrosis can also be treated by prednisone. In a 25-year-old woman with a severe form of this disease who had albuminuria of 8 to 16 gm. per 100 cc. but no arterial hypertension, cylindruria, or hematuria, prednisone was substituted for cortisone after both this drug and corticotropin had proved unsatisfactory. A marked diuresis was initiated. After six weeks of treatment, she required a maintenance dose of only 20 mg. a day. She lost 11 kg. (25 lb.), her serum cholesterol level fell from 380 to 220 mg. per 100 cc., and the amount of protein in the blood increased from 48 to 62 gm. per liter. Her albuminuria persisted.

International Action Against Trachoma.—The second session of the World Health Organization's Expert Committee on Trachoma was held in Geneva in September. Four hundred million people, one-sixth of the world's population, are infected with trachoma. Today, only Europe and North America can be considered as relatively free from it. The World Health Organization has assisted in mass campaigns against this disease. In Egypt, Tunisia, Morocco, Formosa, and elsewhere, these campaigns have proved that the disease can be cured by a combination of antibiotics and sulfonamides. The treatment recommended by the World Health Organization's committee has proved its efficacy in the last three years against all the forms of trachoma prevailing in different parts of the world. In Formosa 1,200,000 patients are under treatment; in Morocco 2,200,000; and in Tunisia 250,000. The experts took note of the success of efforts to control the epidemic of conjunctivitis, which is associated with trachoma in many countries. When the epidemics were controlled, the incidence of trachoma was reduced. The cost of treatment was lowered as control projects became mass campaigns involving great groups of people; also, research has reduced costs by making treatment easier. For instance, it was originally believed that four daily applications of antibiotic ointment were necessary over a period of two months, but new evidence indicates that two daily applications are sufficient. The committee recommended that antitrachoma projects should be integrated into the normal activities of a country's public health service. Trachoma has been reported in countries where it had not been previously noted; e. g., in some territories of western Australia, where up to 50% of certain population groups are affected.

International Congress on Angiology.—At the second International Congress on Angiology held in September in Freiburg, L. A. Hurley of the United States Naval Medical Research Institute said that rapid rewarming to be effective must be immediate. In his study the degree of cold injury was carefully controlled by observing dynamic changes in the tissue temperature as is recorded by a thermopile located deep within the interosseus space between the second and third metatarsal bones and within the plantar arch. Revascularization occurs as early as three days after cold injury and appears to be quite significant in the healing process. At least 70% of tissue that had been frozen solid and to which rapid rewarming was applied survived.

Koelbing of Austria showed that it is possible to do without angiography in the localization of arterial thrombi or emboli. Thanks to the rheograph applied to the leg, one can, by studying the variations in a basal electric current through the resistances, determine the flexibility of the artery. The presence of arteriosclerosis is manifested in suppression of the dicrotic wave. The arterial block can be located precisely by this method, as was shown by checking the findings against those of arteriography. The simplicity and cheapness of this apparatus makes it likely that arteriography will soon be outmoded.

Trauma and Cancer.—Professor von Albertini stated (*Schweiz. med. Wchnschr.* 85:873, 1955) that some regenerative processes should be considered promoting factors in cancer. This is especially true of penetrating wounds with continuity of the regenerated tissue but not of simple scarification of the epidermis. Thus the regenerative processes per se cannot be considered precancerous, and the effect of common mechanical injuries is limited in cancerogenesis. Trauma is therefore not a causal factor, that is, it plays no part in the first stage of tumor formation, but in the second stage it stimulates the growth of preneoplastic tissues. Trauma might play a part in cancerogenesis through liberation of noxious chemical substances in the tissues, but these substances have yet to be identified. Burns produce cancerogenic combustion substances. These conclusions are the result of experiments performed on animals and may not hold true for human beings.

Arterial Transfusion.—A. Berner (*Praxis* 44:486, 1955) reported that blood to be transfused into an artery need not be oxygenated, especially since this is difficult to do. Oxygen obtained from a tank used as the source of pressure in the intra-arterial transfusion apparatus may be used; however, no illusions on the aeration of stored venous blood by contact with oxygen should be held. Oxygen saturation of the blood can be achieved quickly and completely by adding oxygenated water to the stored blood. Transfusing cold blood accentuates arterial spasm and prolongs it, which may have its advantages if it is considered that an arterial reflex may be partially responsible for the success of an arterial transfusion. Furthermore, the red blood cell fixes oxygen better cold than warm. Two types of accident may occur as the result of too rapid transfusion. Potassium rapidly leaves the erythrocytes in stored blood. After three weeks in the refrigerator, there is up to 35% potassium in the plasma. A blood concentration of potassium of more than 40% is fatal to man. For this reason stored blood that is no more than 10 to 15 days old should be used for rapid injections. The transfusion of citrated blood may produce profound intoxication of the myocardium when large quantities are injected rapidly. Intracarotid centrifuge transfusion and intracardiac transfusion are too dangerous for routine use. No cases of gaseous embolism have been reported, but some authors consider it a risk. This danger would seem, however, to be nonexistent.

Inheritance of Amaurotic Idiocy.—Bogaert and Klein (*Journal de génétique humaine* 4:23, 1955) studied 11 families presenting different forms of amaurotic idiocy. In one family, there was simultaneous occurrence of this and Niemann-Pick disease. In all families except one, at least one autopsy was performed, thus making the diagnosis certain. Five families showed the infantile form of amaurotic idiocy, with typical or atypical fundus of the eye; three families showed the juvenile form of amaurotic idiocy; one showed intrafamilial manifestations of amaurotic idiocy and Niemann-Pick disease; in one there was a pair of monozygotic twins of whom both were affected with the late infantile form of amaurotic idiocy; and one family showed the juvenile form of amaurotic idiocy. These observations demonstrate the wide range of phenotypic variations that are encountered in amaurotic idiocy, and they show the difficulties in drawing conclusions as to the diagnosis, nosological classification, and pathogenesis. The genetic approach makes it possible to compare the different phenotypic forms in their clinical expression during several generations of the same family and in their interfamilial manifestations. Thus, on the basis of systematic genetic investigations of a great number of families, as well as on the basis of detailed clinical, pathological, and biochemical investigations, one can hope to assemble clinical conditions that first seem to be heterogeneous and thus proceed to a more adequate nosological classification.

Enterocolitis After Tetracycline Therapy.—The pharmaceutical industry offered a new wide-spectrum antibiotic, tetracycline, after the numerous accidents caused by oxytetracycline, chlortetracycline, and chloramphenicol. Gsell and Kesserling published a report of five fatal cases of enterocolitis due to Micrococcus pyogenes var. aureus in patients treated with tetracycline in the *Deutsche medizinische Wochenschrift* (80:1218, 1955). The clinical findings were similar to those usually seen, but in two patients there were pulmonary complications. In two, in addition to micrococci, either Candida albicans or Proteus organisms were found. The doses of the drug were not high; in four patients 5 to 10 mg. was given for 4 to 11 days. Death came suddenly, with patients in states of circulatory shock with hypokalemia. No benefit was obtained from treatment with erythromycin.

Poliomyelitis Season.—The World Health Organization has published a report on the current poliomyelitis season. The peak of seasonal incidence was reached in the last week of August in North America. Most countries of northern and western Europe also reported a decrease in the first two weeks of September. England and Wales, however, reported a still rising incidence during the last two weeks of September. They have been harder hit this summer than in any summer in the last four years. Few areas in Europe have shown a concentration of poliomyelitis cases this year, but there has been an increase of this disease in 1955, as compared with 1954, in Western Germany and Berlin, Austria, the Netherlands, France, and Belgium. On the other hand, Switzerland has had less poliomyelitis this year than in 1954, and the situation is also especially favorable in Sweden and Denmark. This year's incidence in Canada was the lowest recorded in recent years.

Pulmonary Asbestosis and Bronchial Carcinoma.—Drs. Chauvet and Feuardent reported to the Geneva Medical Society on a patient who had worked at making joints out of amianthus from 1926 to 1933. In the years following, progressive dyspnea and hippocratic fingers appeared. At his first visit to the clinic in August, 1954, the diagnosis of asbestosis was confirmed. The chest roentgenogram showed fibrosis in the bases; it was not of the nodular variety. Asbestotic bodies were found in the sputum. Five months later the patient had the classic findings of bronchial carcinoma. It was located in the left lower lobe and had metastasized to bones. The patient died in February, 1955. Autopsy showed the bronchial adenocarcinoma and the pulmonary asbestosis with presence of asbestotic corpuscles. Carcinoma complicates 15% of cases of asbestosis but is rare in other pneumoconioses.

Proteinuria.—During a conference held at the university therapeutic clinic of Geneva, Professor Lambert of Brussels said the excretion threshold for certain proteins, hemoglobin in particular, was controlled by the proximal tubules. The tubular resorption of hemoglobin increases and the excretion threshold triples after the administration of glucocorticoids, but neither is affected by the administration of mineralocorticoids. These facts would explain the reactivation of tubular resorption by corticotropin in lipidnephrosis, which in turn caused a decrease in albuminuria.

Psychotherapy.—The Swiss Society of Psychiatry joined the Organization of Swiss Physicians in a condemnation of the growing legal as well as illegal invasion by lay therapists of the field of psychotherapy. Without first making a precise diagnosis such therapists can cause great harm to their patients.

TURKEY

Splenic Vein Stenosis.—In the *Bulletin of the Istanbul University Medical Faculty*, Alantar and Polikar reported a case of splenic vein stenosis in a 5-year-old boy. When he was 18 months old he had a distended abdomen and an intermittent fever for which he received antimalarial therapy. One year prior to admission he suddenly vomited coagulated brown blood and had melena, icterohematuria, and a temperature of 100.4 F (38 C) to 102.2 F (39 C) for a week. Within another week the condition had subsided and he remained well until three weeks prior to admission, when he began to have coryza, a cough, and an intermittent temperature of 102.2 F (39 C). After two weeks he again had hematemesis and melena, and for four days prior to admission he had a mild fever in the evening and a tender abdomen. He appeared to be anemic, weighed 37.5 lb. (17.03 kg.), and measured 3 ft. 5 in. (104.14 cm.). The pulse rate was 120 per minute. He had a mild mitral and pulmonary souffle. His lips were dry and cracked; 12 of his 18 teeth were carious; he had geographic tongue; his abdomen was distended; and his spleen was hard. Three days prior to admission it extended 6 cm. below the costal margin, but on admission it had descended to the umbilicus. The liver was hard and extended 2 cm. below the costal margin. The patient had diastasis recti abdominis, an umbilical hernia, and small palpable, inguinal and cervical lymph nodes. The erythrocyte count was 2,420,000 per cubic millimeter, and the hemoglobin level was 40%. The leukocyte count was 4,800 per cubic millimeter, with 48% lymphocytes, 44% neutrophils, 6% monocytes, and 2% transitional cells. The thrombocyte count was 120,000 per cubic millimeter. The bleeding time was five minutes, and the coagulation time was seven minutes. The cephalin-cholesterol test was 1+, and the Takata-Ara test was positive at a dilution of 1:128. The sternal blood showed 30% transitional cells, 27% neutrophils, 22% neutrophilic myelocytes, 13% immature cells, 3.5% lymphocytes, 2% premyelocytes, 2% reticulocytes, and 0.5% transitional eosinophils. Hemolysis commenced at 0.45 and terminated at 0.30. Roentgenograms showed an enlarged esophagus. On the first day after admission the patient had a temperature of 99.1 F (37.3 C). On the following day he had a chill and a temperature of 102.2 F (39 C). Intermittent fever continued, and on the sixth day the spleen was palpable 2 cm. below the umbilicus. During the 18 days that the patient remained in the hospital, there was no hematemesis or melena. He was given a daily dose of 2 cc. of Calciostelin, one ampul of Redoxon and Hepaton, and 0.2 gm. of reduced iron twice daily. The iron was gradually increased, and Campolon was substituted for Hepaton. The parents refused to permit an operation, and the patient was discharged.

Typhoid and Acute Thyroiditis.—In the *Turkish Bulletin of Hygiene and Experimental Biology*, Pamir and his co-workers reported a case of acute suppurative thyroiditis complicating typhoid fever. The patient, a 36-year-old man, was admitted because of acute thyroiditis of unknown origin. Ever since he was 10 years old he had had a hazel-nut-sized swelling in the region of the thyroid. It had not increased in size until his present illness. In the preceding 16 years he had had no clinical signs of hyperthyroidism or hypothyroidism. Ten days prior to admission he developed malaise, anorexia, and fever. He had been given penicillin and streptomycin. Two days prior to admission the swelling of his thyroid gland increased until it was the size of a small apple—painful, red, and hot. Swallowing caused pain, which radiated to the teeth, ears, and scalp. On admission his temperature was 101.3 F (38.5 C) and his pulse rate 100 per minute. The central lobe of his thyroid gland had a hard, painful, inflamed, smooth swelling that moved when he swallowed. In the left submental region a few lentil-sized lymph nodes were palpable. There was no exophthalmos or typhoid rash. His spleen was soft, tender, and palpable 4 cm. below the costal margin, and his liver was soft, nontender, and palpable 2 cm. below the costal margin. The erythrocyte count was 4,280,000 per cubic millimeter, and hemoglobin level was 80%. The leukocyte count was 7,200 per cubic millimeter, with 40% polymorphonuclear neutrophils, 32% transitional cells, 19% lymphocytes, 5% monocytes, and 4% immature cells. Sedimentation rate was 24 mm. per hour. The urine showed a specific gravity of 1.027 and traces of albumin. Urobilinogen and urobilin tests were positive, and Ehrlich's diazo reaction was negative. On microscopic examination there were 3 or 4 erythrocytes, 2 or 3 leukocytes, and epithelial cells in every field. The liver function test showed 5 units of thymol turbidity. Nonprotein nitrogen level was 42.5 per 100 cc. A roentgenogram of the lungs showed clouding and increased arborization. The Paul-Bunnell test was negative.

In the first 24 hours a combination of penicillin and streptomycin was given, but there was no response. After this a group agglutination was 4+ for Salmonella typhosi at a titer of 1:800; 3+ for Salmonella paratyphi at a titer of 1:200; 4+ for Salmonella schottmülleri at a titer of 1:800; 2+ for Salmonella enteritidis at a titer of 1:200; and negative for Brucella. The patient was given a daily dose of 2 gm. of chloramphenicol. Although at first his temperature dropped and regression of the thyroid gland was observed, he had a temperature of 102.5 F (39.2 C) on the second day. He was then given a daily dose of 1 gm. of chlortetracycline as an adjuvant, and after five days his temperature was normal. On the 10th day of this therapy severe glossitis developed. The chlortetracycline therapy was discontinued, and he was given a daily dose of 2 gm. of chloramphenicol and vitamin B complex as an adjuvant. During the 18 days of this therapy he became afebrile and his dysphagia disappeared, but there was an intermittent increase and decrease in the size of the now fluctuating thyroid. Incision of the gland yielded pus from which S. typhosi were isolated. Repeated basal metabolic rates during his illness and after recovery showed the thyroid function to be normal. The patient recovered after 28 days.

Tubercle Bacilli on the Streets.—Because of the influence of health education in schools, pupils refrain from spitting in the streets. The danger of spitting in public places is also stressed through propaganda from the Ministry of Health and Social Welfare. In the *Turkish Bulletin of Hygiene and Experimental Biology* (vol. 15, no. 1) Gürsel and Akyay have reported their observations on 563 specimens of fresh sputum found on the streets of Ankara. Over a period of two years, in all seasons, and in all sections of the city, a trained laboratory technician transferred the specimens with sterile spatulas to sterile Petri dishes. Smear cultures and nutrient cultures were prepared. Tubercle bacilli were found in 27 specimens. Of the 27 strains isolated, all were investigated for streptomycin resistance, 24 for resistance to aminosalicylic acid, and 14 for resistance to isoniazid. Seven were found resistant to streptomycin, four were resistant to aminosalicylic acid, and none were resistant to isoniazid. The 27 strains were all virulent in guinea pigs.

CORRESPONDENCE

TEST FOR DORIDEN

To the Editor:—The appearance of a new sedative on the market always presents a medicolegal problem in that individuals accidently or purposely take or administer an overdose with resultant deaths. Such is the situation with a new sedative, Doriden (α-ethyl, α-phenyl glutarimide). Several reports have already been received implicating Doriden in suicides and possibly murder. Our laboratories have succeeded in developing a colorimetric test for Doriden and some of its metabolites that is based on the reaction of hydroxylamine with the imide group to form an hydroxamic acid. The addition of ferric ion causes the formation of a purple complex. In applying this method to the analysis of Doriden and its metabolites in urine, column chromatography was required to eliminate esters, amides, and anhydrides, which also react with hydroxylamine. From the preliminary results obtained to date, the determination of a metabolite, α-phenyl glutarimide, is of more value than that of Doriden since it is present in urine in greater amounts. Urinary excretion of α-phenyl glutarimide over a 24 hour period in dogs receiving 250 mg. per kilogram orally amounts to about 3 to 4%. This dose compares with that of a 70 kg. (154 lb.) human being taking 35 0.5 gm. tablets. A more detailed report is being prepared for publication elsewhere and will include the application of paper chromatography for greater specificity. In the event, however, that anyone desires the details required for performing this test, they should feel free to contact the undersigned.

Herbert Sheppard, Ph.D.
Research Department
Division of Macrobiology
Ciba Pharmaceutical Products, Inc.
Summit, N. J.

SPECIALIZATION

To the Editor:—It was with considerable gratitude that I read Dr. Howard P. Lewis's address in the Aug. 20 issue of The Journal, page 1414, because he so succinctly expressed a conviction that I, and certainly many young doctors in my position, have sensed growing within. This is the plain need for a critical appraisal of what is and will be expected of us as future internists; where the real emphases in our training should be; and which of the diverse and ever-narrowing paths that are open to us are necessary, or even desirable, to follow in order to round out our skill—and only secondarily in order to pass the required examinations. I speak entirely for myself, but echo feelings voiced by many of my friends who express frank alarm at the attitude of superspecialization thrust at us in our recent years in medical school and thrust again as we anticipate our training in internal medicine. The thoughtful medical student appreciates, perhaps more than anyone else, his need for the kind of clinician Dr. Lewis speaks of. Bombarded for four years with an overwhelming diverse shower of specialized facts, impressed from the first with the impossibility of individually assimilating all the available data, and not infrequently frustrated thereby, the student welcomes a seasoned, penetrating, general clinician of broad experience and understanding. He is the medical student's oasis in the arid land of milliequivalents and clinical loose ends; but unfortunately to many he remains but a theoretical possibility, a closed "Equinimitas" on our desks. I have been especially disturbed after questioning men who have recently taken the board examinations in internal medicine. Will it indeed be necessary for those of us whose natural bend is not toward basic research or building a hasty bibliography to divert our interests and attention for an ill-defined period of time along a controversial road whose end we have no intention of seeking? Fundamental methods of research we would learn eagerly; useful contributions to the literature of medicine we would submit gladly; but to be forced into an arbitrary and constricting pattern to satisfy superscientific requirements is wasteful, and now there is talk of still further lengthening our period of residency training. Is there to be yet another specialty for the man whose inclinations tend more toward the traditional relationships of family doctor to patient, but who has also tasted the pleasure of an obscure diagnosis keenly made? Or are these latent attitudes, which most agree are much needed, to be held in abeyance (or worse) while a period of rote learning for examination purposes is endured? Like Dr. Lewis, I have no illusions of our being able to find the answers to these questions as blithely as they are posed; but that "something must be done" there can be no doubt. Steps to correct the deficiencies and eliminate the evident excesses of our medical schools and residencies should be encouraged by those most in authority, as Dr. Lewis has proposed, lest the nobly conceived boards spawn an increasingly lopsided brood of minutia-heavy, slightly elderly men.

Lieut. (j. g.) Norton J. Cooksey, M. C., U. S. N. R.
U. S. S. Frontier (AD-25)
% Fleet Post Office
San Francisco.

GASTRIC TUBE FOR FEEDING

To the Editor:—I have read the article in the Aug. 13, 1955, issue of The Journal, page 1361, concerning the use of tubes for combining suction and feeding following gastric surgery. In the article appears the statement "No appliance heretofore described permits the removal of the suction mechanism before the feeding mechanism." I published an article in the November, 1950, issue of *The Journal of the International College of Surgeons.* Both articles deal with the same subject and the same principles with the exception of the introduction of the instruments in question, which is insignificant as the theory is the same in both instances.

Leon A. Frankel, M.D.
437 E. Girard Ave.
Philadelphia 25.

POLYCYTHEMIA WITH FIBROIDS

To the Editor:—I should like to draw attention to the fact that in The Journal, Aug. 13, page 1360, a case of polycythemia associated with uterine fibroids was reported by Horwitz and McKelway. A similar case reported by Engel and Singer in The Journal, Sept. 17, page 190, may therefore be the third reported instance of such an association rather than the second, the first case being reported by Thomson and Manson (*Lancet* **2**:759, 1953).

Gerald E. Sinclair, M.D.
84 Gainsboro St.
Boston.

PHYSICIANS AS SPORTSMEN

To the Editor:—I am preparing an article on physicians as sportsmen. I should be very interested in hearing from any of your readers with regard to notable accomplishments in competitive athletics or any type of sport, past or present, by holders of the M.D. degree. I am interested only in activities or accomplishments in this field carried out after graduation from medical school.

Allan J. Ryan, M.D.
147 W. Main St.
Meriden, Conn.

THE LEISURE CORNER

PHYSICIANS AS WRITERS

"I do not know a better training for a writer than to spend some years in the medical profession," W. Somerset Maugham, one of the great storytellers of modern times, once wrote. "Most people have a furious itch to talk about themselves and are restrained only by the disinclination of others to listen. . . . The doctor is discreet. It is his business to listen and no details are too intimate for his ears." Few physicians will disagree with Maugham's observations, for the doctor's daily routine places him in intimate touch with human nature. He knows—or, at any rate, he should know—far better than most the innermost soul of his fellow human beings. Since "the proper study of mankind is man," it should come as no surprise that many physicians have attained outstanding distinction in literature.

One of the most famous persons to practice medicine was St. Luke, "the beloved physician," a Greek slave who studied medicine at the Temple of Aesculapius, as did Hippocrates several hundred years before. Known best as the author of the Third Gospel and the Acts of the Apostles, he revealed his preference for medical terms and for stories of healing and left in his writings unmistakable evidence of his ability in the realms of medical diagnosis and medical treatment. Another physician whose fame became worldwide was Moses Maimonides (1135-1204). Maimonides wrote treatises on philosophy, medicine, mathematics, Jewish law, astronomy, natural sciences, and a host of other topics. He deprecated all kinds of quackery and based hygiene and therapy on scientific principles.

Next in line of fame among literary medical men is François Rabelais (circa 1490-1553), considered by his contemporaries as the greatest doctor of his day. There was probably nothing known in medicine at the time he lived that Rabelais did not know. He combined intellectuality and knowledge of medicine with the insight of a good psychologist. The fact that it was dangerous then as now to introduce unconventional ideas made it necessary for Rabelais to introduce them in the form of robust stories and lusty humor. While he was a medical student, he wrote "Gargantua and Pantagruel," a satirical work that has a timeless quality.

Tobias Smollett (1721-1771), one of the foremost humorists of the 18th century, was for a time a surgeon's mate in the English navy. He had a definite itch for writing, and his first novel, "Roderick Random," was to gain fame as the forerunner of seafaring stories. Although Smollett hoped to combine the practice of medicine with writing, he eventually surrendered the former for a literary career. The reading public of his day was to find his second novel, "The Adventures of Peregrine Pickle," more intriguing than a medical paper written by Smollett bearing the caption "An Essay on the External Use of Water, with Practical Remarks upon the Present Methods of Using the Mineral Waters at Bath, and a Plan for Rendering Them More Safe, Agreeable and Efficacious."

While the career of Oliver Goldsmith (1728-1774) was characterized by his failure to establish a lucrative medical practice, he was to render a distinct service to the medical profession by focusing the attention of his fellow physicians on the need for adopting Auenbrugger's method of percussion. It was as a writer, however, that Oliver Goldsmith impressed the world with his versatility. No history of literature can ignore with impunity the wide range of Goldsmith's talent, and no collection of writing can be complete without including his "Citizen of the World" essays; "The Vicar of Wakefield," which portrays one of the best-loved characters in English fiction; "She Stoops to Conquer," which is still being acted before delighted audiences; and "The Deserted Village."

Despite the fact that Sir Thomas Browne (1605-1682) was one of the most distinguished physicians of his day, his fame now rests upon his literary works. A practitioner of medicine all his life, Browne was the author of the first serious attempt to reconcile religion and science. His "Religio Medici" provides a defense of physicians against the charge of being irreligious. Every student of high-school age is familiar with Boyle's law, but few of them are aware that John Locke (1632-1704), a physician, worked actively with Boyle in its discovery. Locke's early writings all dealt with the general subject of freedom. His activities in behalf of civil liberty and religious freedom led to his being exiled, but he later returned to his native England to write prolifically on philosophy and human understanding.

No list of prominent doctor-writers would be complete without mention of Oliver Wendell Holmes, Silas Weir Mitchell, Anton Chekhov, and Eugene Sue. Oliver Wendell Holmes (1809-1894) was so fainthearted that he could not bear to watch a rabbit chloroformed, yet his work on the contagiousness of puerperal fever probably has saved more lives than any other individual contribution to gynecology. Several years after his observations were reported, his work was confirmed by Semmelweiss. Nevertheless, it is as a writer, poet, and after-dinner speaker that Holmes is most widely acclaimed. His three novels, "Elsie Venner," "The Guardian Angel," and "A Mortal Antipathy" were written after he had passed his 50th birthday. His "Breakfast Table Series" reflects the New England life of his time, and his numerous essays and articles display a kindly, sparkling humor and sound knowledge of human nature. Holmes' poetry fills three volumes. The poems "Old Ironsides" and "The One-Hoss Shay" are perennial favorites among America's young. Holmes thought "The Chambered Nautilus" his best work; many critics agree.

Silas Weir Mitchell (1829-1914) had already attained eminence in the medical profession before entering the world of literature. Medicine was his main road, literature a fascinating side-path. Yet despite his renown as one of the world's leading neurologists, there is a strong likelihood that his novels and poetry will outlast his medical contributions. His first novel, "Hephzibah Guiness," written when he was 50 years old, immediately became a best-seller. In it he advised the American people to learn how to play and pointed out the danger to the nervous system when relaxation is preached but not practiced. His fifteenth novel, which incidentally was his last, was written when he was an octogenarian. In addition to his books on medicine and his novels, Mitchell penned books for children and wrote poetry and at least one play.

The best known among Russian physician-authors is Anton Chekhov (1860-1894), whose short stories and plays established him as one of the giants of world literature. "Medicine," he once asserted, "is my lawful wife and literature my mistress. When I am bored with one, I spend the night with the other. Though it's disorderly, it's not dull, and besides neither of them loses from my infidelity. If I did not have my medical work I doubt if I could have given my leisure and my spare thoughts to literature." In France, a practicing physician attained world fame as the author of "The Mysteries of Paris" and the "Wandering Jew." The period of the greatest success of Eugene Sue (1804-1857) coincided with that of an equally famous writer, Alexander Dumas.

More recently, a number of physicians have made substantial contributions to literature. The medical profession did not at first interest W. Somerset Maugham. But when, as an undergraduate student, he undertook a clerkship in outpatient departments and hospital wards, his interest in medicine sprouted. Although he was educated as a physician, he deserted the world of medicine for literature early in his career. Maugham will be remembered for many years to come for his magnum opus "Of Human Bondage," which covers the period of his medical training.

The writings of Arthur Conan Doyle (1859-1930) are familiar to the entire English-speaking world. There are conflicting reports about his success as an ophthalmologist but none about his ability as the creator of Sherlock Holmes. Warwick Deeping belonged to the third generation of physicians in his family. He is best known for a novel called "Sorrell and Son." A. J. Cronin is another prominent writer who abandoned a medical career for literature. He has written many popular novels, including "The Citadel." The late Francis Brett Young also gave up medicine to enjoy widespread popularity as a writer, a poet, and a philosopher.

In this country, a diplomate of the American Board of Surgery, Frank Slaughter, closed his medical career not many years ago to enjoy fame as a writer of popular novels and short stories. There are other physicians—Albert Schweitzer, Hans Zinsser, William Osler, to name an outstanding few—who also have demonstrated their skill as writers. Although the list is incomplete, it does suggest that medicine and literature have a strong affinity for each other and that doctors who write have made a lasting impression in the annals of literature.

MISCELLANY

The following statement was read before the ninth General Assembly of the World Medical Association. It is sufficiently comprehensive, however, to be of interest to physicians everywhere.—ED.

SOCIAL SECURITY IN THE FIELD OF HEALTH CARE—ITS BACKGROUND AND PROSPECTS

Dag Knutson, M.D., Stockholm, Sweden

Much has been written about the medical profession and its relations to "the outer world," in particular that part of it which deals with social security, of which a great deal falls within the scope of medical activities. What has been placed before the eyes of the attentive reader discloses that little love seems to be lost between the profession and those whose calling it is to provide social security and to extend it to ever greater parts of the population through collective means. In only a few countries do these two groups seem to work together in harmony and produce documents of real value.

RELATIONS OF DOCTORS AND SOCIAL PLANNERS

In principle doctors are naturally anything but opposed to the idea of security for the population; it would indeed be remarkable if they were considering the traditions and tasks of their profession. But, in many ways they find modern trends in the development of social security that are dangerous and ill-advised. These tend to create a bureaucracy and massive administrative machinery, which divert moneys from more practical objectives. They tend to introduce statistical points of view where such are not really applicable, leading to a leveling of benefits that results in too much or too little in relation to highly individual needs. They tend to come between the doctor and his patient, transforming the latter from an individual needing health care to a social mass demanding benefits. They tend to push matters further and further into the political field, thereby introducing alien elements with unexpected consequences and often a departure from sound psychology.

The World Medical Association in its notable "Statement on Medical Aspects of Social Security" draws attention to the fact that all these matters become very complicated for the medical profession: "The success of its work is the result of team-work, where the team consists of two members: the doctor and his patient. Much depends on the cooperation of the latter. Restoration of health to a great extent depends on the will of the patient to get well: this will must be encouraged. If the will is there, doctors can the more easily heal their patients, as well as control the functioning of social security in their own field—both fairly successfully. If it is not, they will probably fail."

Naturally these words, and others to be found in the same statement, were received with mixed feelings. In some places the orthodox press had convulsions of fury, due perhaps to possible political implications, which shows the truth of Dr. Ffrangcon Roberts' words: "Among all the subjects with which governments are concerned, health is in many respects unique. Emotion and sentiment are its natural accretions, of which it can be stripped only with the greatest difficulty, and those attempting the task run the risk of being charged with callousness. It is thus weighted with meretricious party-political value."

The position of "the other side," i. e., the social planners, is perhaps less clear. It expresses itself, at least officially, with a certain caution as to the medical profession, although bitterly critical remarks can be found. In a roundabout way we can deduce that doctors are far from popular with the members of this "other side." These people insist on having what they call a liberal profession. They keep talking about the doctor-patient relationship as something which would remain uninfluenced by development in the field of social security. They complain doctors refuse to be looked upon as technicians in the service of institutions. "What difference does it make," they ask, "since the role of doctors is to safeguard the welfare of people who have lost the necessary balance, namely health?" All this occurs, say the social planners, because doctors have not "adapted themselves to new social forms of organization" nor noticed that "sickness has become a social phenomenon, which affects the whole national economy." As Mr. Lavielle complains: "The language of doctors is getting further and further away from the language of social security."

In voicing these complaints the social security planners would do well to recall that they have rarely if ever consulted the practising medical profession and any advice they may have received from the profession has been consistently ignored. No medical care program can ever be successful unless it has the cooperation of those who have to carry it out. Is it any wonder, then, that the doctors are demanding that they be consulted at the planning level? Perhaps, if the doctors were consulted, the social security planners would have less difficulty in understanding the language of doctors.

Off and on we are led to suspect that there are, from our point of view, more serious complaints, dealing with medical ethics, personal integrity, and proper financial disinterestedness. However, if the language here is cautious, the medical profession should observe the fact, in case there is fire behind the smoke.

FINANCIAL ASPECTS

One thing, though, is extremely clear—doctors and their activities cost a great deal of money, and the cost is steadily increasing, thus causing social security institutions severe headaches. At the bottom—and this applies to practically all discussions and all statements coming from these quarters—the difficulties and complaints involve unconquerable financial difficulties. Deficits are always threatening, receipts and expenses do not balance, and, above all, expenses show an appalling tendency to increase, even where the general standard of living is high and rising, as in most well developed countries. This is a truth that is openly admitted by the social security institutions themselves, which frantically hunt for ways and means to increase their revenue and to diminish expenditure. The possibilities of increasing revenue are limited by hard and realistic facts, while reducing costs meets a multitude of obstacles, some of which—and they are important ones—are consequences of that meretricious party-political value, of which Roberts speaks.

Under these circumstances it is understandable that doctors come under the consideration of those who have to try to make both ends meet. A very considerable part of the costs of social security go through the hands of the medical profession, which evidently has, in addition to other obligations, been given new and complicated ones. Just how big this part of the cost is cannot be stated. Available statistics do not provide such detailed analysis. The question of how much the medical profession is responsible for costs and their augmentation remains, for the time being, unanswerable. Naturally, even more impossible to learn is whether the profession, through letting itself be too much influenced by patients' wishes or for other reasons, incurs avoidable expenses and, if so, to what extent. It is, however, highly improbable that the steady and, in fact, rather frightening increase in social security costs should be attributed to doctors' activities other than those due to the introduction of new or increased benefits and additions to the population. Also, it must be remembered that many social security activities fall entirely outside the scope of medical work.

Some hard facts as to the actual, or at least comparatively actual, situation can be found in "The Cost of Social Security 1949-1951," recently published by the International Social Security Association in collaboration with the International Labour Organization. The document has been referred to as a source of information of undeniable interest in the report of

---

Chief Physician, University Policlinic for Internal Disease, Karolinska Sjukhuset.

the social security committee to the ninth general assembly of the World Medical Association. It should be viewed as an attempt to create a basis for international comparison of social security costs. Considering the variety of social welfare systems in use, the incompleteness of national statistical material and the intricacies that characterize the distribution of sources of income, as well as expenditure in the modern community, great caution has to be displayed in using and in interpreting the material. In fact, the reader of the booklet is advised to do so. Many questions are left unanswered. The total costs of social security are not available, as the "national social security system" of each country has had to be limited to certain schemes which satisfy the criteria of being legally established, administered by public, semipublic, or autonomous bodies, and intended to provide curative or preventive medical care, means of subsistence, or supplementary income. Certainly a great many efforts with similar aims are excluded from the investigation and the total "turnover" of all activities cannot even be estimated. There is, wisely enough, no definition of the expression "social security."

Nevertheless some interesting facts are revealed. Of the 18 European countries included, 17 have reported total expenses relative to pertinent social security schemes. In the year 1949, the grand total for these expenses amounted to a sum of $12,715,000,000. Two years later the corresponding sum was increased almost 32% or by $4,012,000,000—to a total of $16,727,000,000.

Similarly, in 1949-1950, 12 non-European countries together expended $13,460,000,000 and in 1951 this sum had been increased by $1,472,000,000 to a total of $14,932,000,000. The distribution here is more uneven than between the European countries, and the United States alone expended about 80% of the mentioned total sum. All in all then, for that part of social security that has been recorded, in 1951, 29 countries spent $31,659,000,000, increasing expenditures over 1949-1950 by $5,484,000,000.

The total sums are probably not imposing if compared, for instance, to those spent on armament. Nevertheless, they give an over-all picture of where we are. They also seem to explain why social security institutions begin to feel disturbed. Perhaps of greater interest are the figures on the increases of expenditures: for European countries in two years about 32% and for all recorded countries about 21%.

Of further interest is the fact that administrative costs in European countries for the year 1951 amount to a grand total of $680,000,000. In the United States alone this was $512,000,000. Data on this type of expenditure are, however, far from complete, many items being too entangled with other expenses to be extricated. It is to be assumed, however, that the sums used for administrative expenses also have increased. The basic tables do not permit comparisons on this item, but the steady depreciation of most currencies with a corresponding increase in wages and prices would make such an assumption highly probable.

However, trends of development are of greater interest than actual status. Will costs continue to increase at the same rate, and can they do so? If they do so, why? These questions are, for many reasons, extremely important to the medical profession. A very considerable proportion of social security expenses fall under the two headings, "social insurance" and "public health services." Between them they are generally responsible for well over 50% of the expenses, and the main part of doctors' activities as well. Total receipts of social security as reported in this investigation are expressed as percentages of total national income, and range in Europe in 1951, from 7.1 to 20—with one exceptionally low figure; outside Europe they are a bit lower, with a scale varying between 1.6 and 12.6. Thus, we see that the recorded activities alone handle sums of such magnitude and that the impact on economic life must be extensive. In reference to its repercussions on "social life," this cannot, of course, even be expected that *les enfants de la patrie* need not ask their material meaning. This is particularly true of countries, where the general standard of living is highest and it therefore would be expected that "les enfants de la patrie" need not ask their Alma Mater to assume so many of their responsibilities for their own social security, which in one way or another are ultimately charged to their own expense.

The answer to the questions just asked is, in all probability, in the affirmative. To quote Mr. Petrilli, the president of the Italian National Sickness Insurance Institute: "The accounts of the (social security) institutions will always show a deficit and will constitute a burden until the moment arrives when governments will apply themselves seriously to the problem." Here one might insert the remark that governments certainly seem to apply themselves to the field in question—whether seriously, in the sense desired by Mr. Petrilli, can be left aside for the moment. Most doctors would agree with Mr. Petrilli. They would also agree with Mr. Ulloa, the head of the legal division of the Venezuelan Social Insurance Institute, who, in discussing factors that influence the costs of social security, especially medical services, states that "where social insurance is in course of progressive application to the whole country, each new extension causes a disproportionate expenditure that may be explained as follows: (a) a great part of the beneficiaries in a new zone rush to take advantage of the insurance, with consequent congestion; (b) the mortality (morbidity?) index for such a zone is relatively high; and (c) the industrial development and the population covered are not sufficient to produce an income to balance the expense. It must also be borne in mind that in districts in which social insurance has been applied for some time, the Institution slowly creates in the beneficiaries the habit of resorting to medical services whenever they feel the slightest physical indisposition."

This statement refers mainly to conditions in Latin America but seems to be fully applicable to conditions elsewhere. Like Mr. Petrilli, Mr. Ulloa raises "the question of a greater participation by the state in the maintenance of the medical services and the possibility of arriving at a national medical service."

These two highly experienced gentlemen then seem to be of a somewhat pessimistic turn of mind, where the financial prospects of social insurance are concerned. They, as well as the international association which they represent, feel that, to a considerable extent, doctors should be blamed for this situation. Those of us who have studied the resolutions of the International Social Security Association on Medical Secrecy, on the prescription of medicaments, and on the conclusions concerning the relations between social security institutions and the medical profession, have formed a strong impression of their opinion.

MEDICAL ETHICS AND CONCEPTS AND SOCIAL POLITICS

It is for the profession to consider whether its activities in the field of health care (the possibility of occasional but always deplorable instances of misconduct being recognized) follow not only the rules of science but also those of ethics, in recognition of the fundamental principle that any claim for freedom and authority must be accompanied by a guarantee. It is also the duty of the profession to define its scope and contents. This has, in fact, been done, and the profession seems to feel that on the whole it observes its existence. Whether "the other side" shares this opinion seems doubtful. Mr. Petrilli finds the most probable solution of the financial difficulties in which social security institutions find themselves, in "giving the principles of professional ethics statutory force." This would not indicate that the "reactionary" medical profession is found "reactionary" even in the manifest recognition of principles of venerable age but of a nature disconcerting to the social security institutions.

However, Mr. Petrilli adds as a second part to his solution "a new interpretation of the practice of medicine consistent with the new exigencies of the social period in which the world finds itself to-day," and this leads to considerations of a different nature. It has already been mentioned that the International Social Security Association reporters, Messrs. Petrilli and Ulloa, suggest increasing *state intervention*, and they are by no means the first or only ones introducing such eventualities. The International Labour Organization long ago drew attention to "the tendency of loosening up the ties between benefit right and contribution payment, and of creating a public service for the citizenry at large making all care and supplies available at any time and without time limit . . ." In other words, the whole field of social security including social insurance, which no longer is insurance *sensu strictiori*, is being centralized and pushed into the arms of the state, governed by state policies. The real answer, therefore, to any question pertaining to future developments has to be sought in the political field, even if, perhaps, finally and ultimately the relentless financial realities will be one of the deciding factors. So far, political forces have had some elbow room—or believe that they have—and social politics lends itself well to appealing declarations and building-up platforms for party-political, competitive activities, consequently quickly reaching a central position. It is, in fact, as experts have pointed out, being raised from a humbler position to a leading role, changing its former task of correcting conditions to the new one of creating them. The expansion is brought about in the usual way: needs are discovered, given wide publicity, and immediate steps are demanded to meet these needs. This costs money and the pocket of the taxpayer has to be searched anew—a procedure, the success of which depends on the probability of accompanying promises of a reasonable return. So far the average man has paid up, proving himself to be credulous, if not gullible. But even if he is not, he has to pay anyway.

This may be all right up to a certain point—that point being when he begins to feel that his protection and the sugar coating do not make up for his restricted and controlled activities. In the so-called highly developed countries this point has been reached or even passed and he reacts, conscious or perhaps more often unconscious of the real trouble, in different ways. Many of these reactions take him to the doctor. Look at the various delinquencies, at statistics of drug addiction, divorce, and crime. Can we say that we have been able to bring man any nearer that complete mental, physical, and social well-being that is the proclaimed aim of social security? This question is raised by a famous British psychiatrist, who answers himself with at least serious doubt. The psychosomatic troubles are becoming more frequent, and not only because we have come to observe them more closely.

This then is important. It also means that the doctor's particular section of social security is being drawn into the political field. For instance it is extremely misleading to state, as has been done in the International Social Security Association report on relations between the social security institutions and the medical profession, that the introduction of a compulsory sickness insurance in Sweden with some direct benefits indicates that the new system would be more advantageous from the viewpoint of the insured and the medical profession. In fact, large numbers of the insured were opposed or doubtful, and the doctors fought the plans from the very beginning, having studied similar systems and their effect in other countries. The matter was more or less purely political, cherished by competing political parties, and left a number of unsolved but important details and an equal amount of general difficulty for patients as well as doctors. The promise, therefore, to provide the necessary, adequate, and most effective medical care for all persons protected becomes a political one. Strengthened and reinforced by article 25 of the Declaration of Human Rights, its scope gradually widens. It tends to be the conception of society's acceptance of the responsibility for man's well-being, i. e., his feeling well. The most effective medical care is evidently the one leading to *restitutio ad integrum*, as doctors say. Hence the duty of society goes further and delves into regions of unlimited and still partly unknown areas. Health itself is being raised to the august level of one of man's inalienable rights, the guarding of which eventually becomes a correspondingly important duty of society.

It is essentially here that the views of the medical profession become irreconcilable with those of the social security institutions or their various sponsors, namely, state, community, ultimately the politicians, generally lay people. At the very foundation is a difference between the lay and the professional conception of health. Health to the laity, beside being something positively good, embedded in emotions, and endowed with almost mysterious properties, is often more or less equal to a capacity for work. Often, too, it seems that its production is regarded as a result of comparatively simple and technical measures—the doctor is a technician. The Lima medical declaration of 1949 recommends that "systems of evaluation should be worked out among the Social Insurance Assistance Organizations . . . which would evaluate the work of the doctor on the basis of efficiency, rapidity and economy of the diagnosis and treatment of the cases and not merely be based on the number of consultations, operations and medical acts performed." The first part of this recommendation does not sound or promise well; the second part may aim at a mitigation.

Finally, the often heard thesis on the enormous gains of modern medicine seems to be interpreted as a promise of immediate practical results. Not so to the medical profession, for whom health is a state of normal psychophysical functioning—the neutral point around which the human being revolves and to which he tries to return. Homeostasis, chiefly promoted by inherent propensities, can sometimes be brought about by medical measures. Individual reactions to these are about as numerous as the individuals themselves, and, what makes things worse, somatic factors are increasingly mixed with psychological ones, with even more diversity. Modern society breeds nervous disorders. The craving for higher standards of living through increased production, work under contract pressures, the monotony of factory work in industry, the impossibility of feeling a personal responsibility in the final product of the large industry, the heavy taxation, and the sneaking feeling that the return is not good enough nor the money earned of stable value, and added to this, controlling measures, forms and slow progress when the welfare machinery, so efficient looking on paper, starts grinding—all of this leaves obvious marks on the mind of the average man, and the doctors of the world can bear witness to this fact. I am aware that I speak as a member of a highly developed society, one of those that are held up as desirable examples for so-called underdeveloped, nonindustrialized countries where "progress" is slow or even imperceptible, but I can frankly state that the tasks of my colleagues and myself are becoming steadily more difficult to fulfill. Health cannot be manufactured. Furthermore, there is no royal road to health. Health is not a reward for faithful abiding by certain rules of living, nor does it exist in proportion to material conditions beyond a rather primitive level.

NEED FOR RESPONSIBLE COOPERATION

Finally, in health there is a very definite element of recognition and will, which further contributes to its personal character. Its creation is an adventurous task, for the fulfillment of which medical science, artistic touch, didactic activities, and often time, itself, must join forces. But science means new questions, art moves in the lofty regions of intuition, and the outcome of teaching depends on the quality of the teacher-student team. Hence there are many variables and unknown factors in the equation.

Therefore, if social politics and, emanating from it, social security schemes, try to shoulder the responsibility for the well-being of man, there can only be one outcome: demands will forever exceed supply and financial resources. Doctors, whether members of a liberal profession or working as civil servants, whether assuming the role of guardians of the patient or that of controller on behalf of the security system, can do but little to change this, at least as long as they are true to their professional and ethical standards. It is of course nonsense to talk about cheap, and yet first-class, medical care. Medicine cannot be cheap, and will become less so. He who embarks upon social security schemes including health care at a first-rate level will have to realize that, on the whole, hopes for a compatibility with available financial resources should be abandoned.

This should not be regarded as a *non possumus* from those who try to make their fellow man healthier. Nor does it contain an evaluation of any specific system. The medical profession should recognize its heavy responsibilities, scientifically and ethically, and I should like to emphasize each of these with the same force. The medical profession should also cooperate with those whose task it is to see that the doctor's recommendations can be implemented. However, it must demand that medicine not be looked upon as a technology; that the care of the individual patient not be deprived of "social" value or nature; and that this care not be interfered with in a way which further complicates already difficult problems. The medical profession must state that medicine, an age-old art merged with a young science, should set its own conditions of practice, with social security systems assisting in the achievement of the ultimate goal.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Pulmonary Embolism. H. Hussey and S. Katz. GP 12:59-68 (Aug.) 1955 [Kansas City, Mo.].

The diagnosis of pulmonary embolism that results from lodgment of a blood clot in the pulmonary artery or one of its branches is not difficult when it is manifested by such symptoms as sudden chest pain, dyspnea, hemoptysis, fever, signs of consolidation, and evident venous thrombosis. This typical picture is present in a minority of cases. More often, pulmonary embolism mimics other diseases. The respiratory manifestations may be greatly overshadowed by symptoms suggesting heart disease or cerebral disease. Pulmonary embolism should be considered when fever appears on the third or fourth postoperative day. In cardiac patients one should think of pulmonary embolism when heart failure is suddenly aggravated or in the presence of persistent heart failure, coronary type pain, low grade fever, mild icterus, and tachycardia. Occasionally, a transient episode of unconsciousness is the chief sign of pulmonary embolism. Older patients with pulmonary embolism may present the clinical picture of localized or general convulsions, of a hemiplegia, or of some other neurological disorder. Pulmonary infarction and pneumonia have symptoms in common and pulmonary infarction is often erroneously diagnosed as pneumonia. Sometimes the chest roentgenogram provides a valuable clue or indeed is typical of pulmonary infarction; the typically cone-shaped infarcts may appear triangular, oval, or round, but irregular shapes are common. The rapidly changing nature of pulmonary infarction and multiple bilateral densities are valuable clues in the differential diagnosis. When a patient is known to have had an episode of pulmonary embolism, he is particularly vulnerable to repetition of the attack, and, with succeeding episodes, the likelihood of a fatal embolism increases extraordinarily. The total risk of thromboembolism may be reduced by adequate anticoagulant therapy.

Clinical Studies of Secondary Amyloidosis in Tuberculosis. M. H. Wald. Ann. Int. Med. 43:383-395 (Aug.) 1955 [Lancaster, Pa.].

Secondary amyloidosis occurred in the course of tuberculous disease in 30 patients in the Chicago Municipal Tuberculosis Sanitarium. Of the 30 patients between the ages of 18 and 61, 21 were men and 9 were women, 25 were white and 5 were Negroes. Congo red retention of 90% or more was a standard criterion for diagnosis, and all but 2 of the 30 patients showed such a retention of dye; in the 2 patients in whom it was absent initially, it appeared later. The average interval between the presumptive onset of tuberculosis and that of amyloidosis was 4.6 years. The data referring to this finding in the author's patients suggest higher resistance to amyloidosis and later onset among females. Albuminuria and hepatomegaly were almost always present. Studies of hepatic function indicated impairment, as evidenced by diminished cholesterol esterification in 13 of 20 patients, depression of normal albumin-globulin ratio in 21 of 28 patients, cephalin flocculation of 2 plus or higher in 11 of 12 patients, elevated thymol turbidity in only 4 of 11 patients tested, and retention of bromsulphalein above 10% in 8 of 23 patients. Hypercholesteremia was observed in 6 of 23 patients, and it was associated with massive albuminuria in 4. The presence of hypercholesteremia offers a more favorable prognosis in some cases. Normal or elevated total plasma proteins, a tendency to hyperglobulinemia, inversion of the albumin-globulin ratio, and wide variation of albuminuria were observed. The alterations of total plasma protein and its fractions are the result of the net effect of the stimulation of globulin formation by infection, albumin loss by reason of albuminuria, and the depressing effect on the production of all protein fractions by hepatic impairment. Renal failure to the point of nitrogen retention was observed in four patients, three of whom died in uremia. Impairment of renal function as measured by phenolsulfonphthalein excretion and confirmed in some patients by either urea clearance or concentration tests, was present in most of the patients. The severity of the albuminuria did not parallel impairment of renal function. The classic syndrome of nephrosis with massive albuminuria, hypoproteinemia, hypercholesteremia, and edema was observed in only one of the 30 patients. Edema was absent or minimal in most of the author's patients and, when present, did not necessarily accompany hypoproteinemia or severe albuminuria. The average duration of amyloid disease in this series was 2.26 years. Of 13 patients surviving after 1951, the average duration of the disease was four years, and the average duration of amyloidosis in the 7 patients who were alive at the time of the publication of the author's paper was five years. This is presented as evidence of the greatly improved prognosis of secondary amyloidosis resulting from the recent progress in the therapy of tuberculosis. The cases of two patients with apparent regression of amyloidosis are described. Congo red retention decreased from 100% to 40 and 35% respectively. Evidence of persistent involvement of liver or kidney, or both organs, was found in these patients.

Contribution to the Diagnosis of Tuberculous Peritonitis. W. Gropp. Medizinische, no. 31/32, pp. 1075-1077 (Aug. 6) 1955 (In German) [Stuttgart, Germany].

The occurrence of tuberculous peritonitis is reported in three female patients between the ages of 15 and 43 years and in three men between the ages of 27 and 70. In one of the patients tuberculous peritonitis occurred simultaneously with pulmonary tuberculosis, and in another patient peritonitis was secondary to pulmonary tuberculosis. Signs of primary organic tuberculosis could not be observed in two patients, and in the remaining two peritonitis occurred as a complication of a disease of the liver. The interval between the first complaint and the final diagnosis varied from 3 to 24 months. Laparoscopy established the diagnosis in each of the six patients. In two patients, the diagnosis of tuberculous peritonitis was highly probable and might have been made without the laparoscope, although other causes could not have been excluded without examination of the abdominal cavity; in the other four patients, however, the diagnosis could not have been made without the laparoscope. Thorough general examination particularly in patients with tuberculosis of the lungs or other organs associated with abdominal pain, a careful roentgenologic examination of the small intestine and of the colon, and laboratory tests such as an increased erythrocyte sedimentation rate, a positive cadmium reaction, and a shifting to the left in blood smears, may offer some aid in the diagnosis of tuberculous peritonitis in patients with atypical abdominal pain, loss of weight, and tendency to constipation or diarrhea. Laparoscopy is considered the most important method of examination, since it establishes the diagnosis within a few minutes by making possible inspection of the entire parietal peritoneum, omentum, large portions of the stomach, small intestine, colon, uterus and adnexa, liver, and spleen. Within four months, a complete cure was obtained by rest in bed and administration of streptomycin, isoniazid, aminosalicylic acid, and amithiozone in four patients; one patient

---

The place of publication of the periodicals appears in brackets preceding each abstract.

Periodicals on file in the Library of the American Medical Association may be borrowed by members of the Association or its student organization and by individuals in continental United States or Canada who subscribe to its scientific periodicals. Requests for periodicals should be addressed "Library, American Medical Association." Periodical files cover 1946 to date only, and no photoduplication services are available. No charge is made to members, but the fee for others is 15 cents in stamps for each item. Only three periodicals may be borrowed at one time, and they must not be kept longer than five days. Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

was lost to follow-up; and one died of severe cirrhosis of the liver. With rest in bed and administration of tuberculostatics, the prognosis is favorable in most patients.

Studies of Ulcerative Colitis: III. The Nature of the Psychologic Processes. G. L. Engel. Am. J. Med. **19**:231-256 (Aug.) 1955 [New York].

Engel reviews 44 published reports of psychological data in more than 700 patients with ulcerative colitis and reports personal observations in 39 patients with ulcerative colitis. Among these patients there were found with consistency (1) defects in personality structure long antedating the onset of colitis, (2) a characteristic type of dependent and restricted relationship with people, (3) consistent psychopathology in the mothers, and (4) failure to achieve full heterosexual development. The onset and relapses of the disease were observed to occur in settings that represented to the patient real, threatened, or fancied interruptions of key relationships, but the disease developed only when the corresponding affect was helplessness, despair, and hopelessness. In conflict situations that were not responded to with such affect, other neurotic, psychotic, or psychosomatic reactions, notably headache, were observed. The author offers a modified formulation of psychosomatic concepts of ulcerative colitis that stresses the significance of the mother-child symbiosis in determining the particular personality development and vulnerability to separation; it relates the tissue reaction of ulcerative colitis to biological changes occurring consequent to traumatic separations, and it attempts to account for the choice of organ (colon) on the basis of constitutional and experimental factors in the mother-child interaction.

Whipple's Disease: Glycoproteins, Lipoproteins and Other Biochemical Studies Before and After Successful Cortisone Therapy. F. Schaffner and A. L. Scherbel. Gastroenterology **29**:109-119 (July) 1955 [Baltimore].

Recent histochemical investigations of intestinal and mesenteric lymph node tissues in Whipple's disease (intestinal lipodystrophy) provided a rational basis for treatment of this rare condition. The demonstration of a polysaccharide-rich material, presumed to be protein, suggested a relationship of this condition to the systemic "collagen diseases" and a possible response to corticosteroid therapy. The authors present the history of a 39-year-old man who complained of recurrent diarrhea of two and a half years' duration. The diagnosis of intestinal lipodystrophy was made preoperatively on the basis of chronic diarrhea, fever, arthritis, emaciation and pigmentation associated with anemia, albuminuria, hyperglobulinemia, low serum cholesterol, and abnormal roentgenograms of the small intestine. The diagnosis was confirmed by mesenteric lymph node biopsy using periodic acid-Schiff stains. Biopsy of the liver and axillary lymph nodes failed to reveal specific abnormalities, and sarcoid-like follicles were not seen. The lack of increased fat in the stool possibly was a result of the low-fat, bland diet to which the patient had rigidly adhered. The elevated sedimentation rate, antistreptolysin O titer, and serum gamma globulin, as well as the history of transient arthritis and the finding of a loud apical systolic murmur that did not disappear after the patient was well, support the contention that Whipple's disease may perhaps belong to the group of diseases of which rheumatic fever is an example. The elevation of the total serum polysaccharides and mucoprotein polysaccharides is also in keeping with this contention. After the diagnosis of Whipple's disease had been made and the patient was being prepared for an operation, he was given several pints of blood and vitamins. He improved following this treatment, but after five weeks his diarrhea recurred. A laparotomy was performed, which confirmed the diagnosis. Treatment with vitamin B_{12} was tried but was not effective. Some weeks later he was given 300 mg. of cortisone intramuscularly. The following day he was given 200 mg. and then 100 mg. a day thereafter. He was placed on a low-sodium diet and given potassium. In the first week his appetite improved and he gained 12 lb. (5.4 kg.), although ankle edema developed. During the second week he began to complain of abdominal and generalized muscular pain. Another laparotomy was done because of increasing abdominal distention and general deterioration. The immediate postoperative period was stormy. The patient was given 30 mg. of corticotropin intravenously in addition to 300 mg. of cortisone intramuscularly. The corticotropin was continued for five days in decreasing doses, and the cortisone was decreased after three days to 100 mg. a day. The patient became asymptomatic and was up and about. Fecal fistulas developed, but they closed, and later the stools became normal and the patient stated that he felt better than ever. Literature reports are cited to the effect that earlier four other patients with Whipple's disease were successfully treated with steroid hormones and one with nitrogen mustard. The authors regard it as most likely that Whipple's disease is a bizarre isolated inflammation of the mesenteric lymphatics in which a peculiar type of protein is released and in which the carbohydrate and fat bound to the protein are also deposited in the mesenteric lymph nodes. The term lipodystrophy is a double misnomer because the primary alteration is not a dystrophy but an inflammation, and it probably involves polysaccharide-containing mesenchymal tissue with only secondary lipid deposition.

Constitutional Anemia (Fanconi's Syndrome) and Leukemia in Two Brothers. R. H. Cowdell, P. J. R. Phizackerley and D. A. Pyke. Blood **10**:788-801 (Aug.) 1955 [New York].

Fanconi's syndrome can be considered in two separate parts: first there is the bone marrow hypoplasia with resultant anemia, thrombocytopenia, and often leukopenia. The second part consists of other congenital defects that are not absolutely uniform from case to case but present a fairly well-defined pattern, usually including microcephaly and genital hypoplasia. The authors record the history of two brothers who had similar although not identical congenital defects. The defects were such that if both brothers had suffered from hypoplastic anemia there would have been no doubt that the diagnosis of Fanconi's syndrome was correct. However, only one of them developed anemia of this kind; the other died of acute leukemia. The two brothers became ill in their third decade, one with severe bone marrow hypoplasia and the other with acute leukemia. Both died and autopsies were performed. The two shared certain congenital defects, notably short stature with small heads, cutaneous pigmentation, pituitary and genital hypoplasia, and deformity of the thumbs. The brother with hypoplastic anemia also had aortic hypoplasia and his left kidney was absent. No previous report was discovered of the association of Fanconi's syndrome and leukemia with similar congenital defects in brothers. In two reports of leukemia affecting cousins of patients with Fanconi's syndrome, the leukemic cousins were without congenital defects. It is not suggested that there is necessarily any profound significance in this association of leukemia and the familial anemia of Fanconi in one instance in brothers and two in cousins, but it does raise the question of connection between certain cases of leukemia and aplastic anemia. The authors have seen several patients who initially had all the features of aplastic anemia, and in whom later frank leukemia developed. Three such cases were mentioned by Adams in 1951. The authors do not know whether these cases should be regarded as cases of leukemia with an initial phase similar to aplastic anemia or whether they indicate that true aplastic or hypoplastic anemia may pass on into leukemia, but the association does deserve attention.

Complete Relief of Gout. F. G. W. Marson. Lancet **2**:360-364 (Aug. 20) 1955 [London, England].

Effective control of the serum uric acid level by continuous administration of sodium salicylate rapidly relieves the symptoms of chronic gouty arthritis. At first mild attacks of acute gout continue, but after a variable period all painful manifestations of gout are completely relieved. The histories of seven patients in whom this happened are described, to whom either sodium salicylate or probenecid was administered for periods of 18 to 60 months. The patients were selected only in that they all had chronic gouty arthritis, their blood urea level was normal, and they had been followed for at least 18 months while receiving therapy. The remissions obtained seemingly could not have been spontaneous because the patients' attacks occurred frequently and were usually becoming progressively more frequent and severe when treatment was begun. (Long spontaneous remissions are generally limited to patients in whom symptoms have consisted of occasional acute episodes.) The delay in the full effect of this therapy can be explained on the following basis. Reabsorption of urate deposits may continue for many months, as shown by the gradual shrinking of tophi and progressive radiological improvement. During this time it is likely that the uric acid level in the tissue fluid in proximity to the dissolving tophi is appreciably higher than the level in the serum; this may explain why acute paroxysms of gout can occur with normal levels in the serum. Perhaps acute gouty paroxysms stop when urate deposits have been completely absorbed or when the remaining deposits are insoluble. It might be expected that only under these circumstances would the uric acid level in the tissue fluid be reduced to about the same as that in the serum, thereby protecting the patient from further attacks of acute gout. In one of the author's patients a recurrence of gouty symptoms followed the substitution of probenecid for salicylate. However, this drug is sometimes effective in relieving gout and is indicated in patients who cannot tolerate salicylate. Prolonged therapy with uricosuric drugs is not necessary in every patient with chronic gout. Patients whose symptoms are limited to recurrent acute episodes may need it, depending on the frequency and severity of these attacks and the extent of relief obtained from prompt administration of colchicine.

Calcinosis Universalis. E. C. Arendt, C. J. Pattee and H. S. Mitchell. Canad. M. A. J. 73:269-272 (Aug. 15) 1955 [Toronto, Canada].

A case of calcinosis universalis is described in a 25-year-old man in whom calcium salt deposits in the form of hard subcutaneous nodules had been present since the age of 5 years. Palpable nodules were present in the muscle mass of the right hamstring group and both biceps. There were subcutaneous calcifications around the left elbow and in the left axilla. The patient admitted drinking several quarts of milk daily in the course of the last two years while in the army. Complete x-ray examination revealed calcified areas in the right thigh, in the left and right arms, and left axilla. There was no evidence of calcification in the soft tissues of the chest and abdomen, the heart and main vessels, the kidneys, or the joints. The bones were normal in appearance. Calcium, phosphorus, and nitrogen balance studies were made with the patient on a ward diet, a ketogenic diet, and a ketogenic diet with low calcium. Since the ketogenic factor in the diet did not further increase a negative calcium balance, the patient was discharged on a low calcium diet only and was asked to avoid all milk and milk products, since the exacerbation of his condition as well as a previous one at the age of 13 years were definitely related to increased calcium consumption. Pathogenesis, symptomatology, prognosis, treatment, and differential diagnosis of calcinosis universalis are discussed briefly.

Kwashiorkor and Protein Malnutrition: Dietary Therapeutic Trial. J. F. Brock, J. D. L. Hansen, E. E. Howe and others. Lancet 2:355-360 (Aug. 20) 1955 [London, England].

In kwashiorkor cure can be initiated by administering skimmed milk without further dietary supplements. Therapeutic trials in 135 patients with the disease at three centers in the Union of South Africa are described, the object being to determine which nutrients in skimmed milk are responsible for the cure. The trials were limited to the initiation of cure, no conclusions being drawn about its consolidation. A partly synthetic formula, C_3, consisting of Labco vitamin-free casein, water, glucose, and a salt mixture proved to be no less effective than skimmed milk both in initiating cure and in restoring the serum albumin level. The tests are being continued with Labco casein from which Schwarz's factor 3 has been removed, and with mixtures of pure amino acids patterned on casein. An addendum to this article states that results comparable to those obtained with the milk and casein formulas have been obtained in nine additional patients with kwashiorkor treated with a mixture of synthetic amino acids supplemented by known vitamins. No unidentified factors such as Schwarz's factor 3 or György's Lactobacillus bifidus factor are required for the initiation of cure.

Action Mechanisms of Salicylate Therapy. J. Roskam, H. Van Cauwenberge, R. Vivario and M. Vliers. Presse méd. 63:1105-1107 (Aug. 13) 1955 (In French) [Paris, France].

The effects on corticoidemia and corticoiduria of salicylates and corticotropin were studied in five patients. Intensive, continuous, or prolonged salicylate therapy, if it produces a sufficient level of salicylemia, usually causes a significant increase in the blood level of the 17-hydroxycorticosteroids. An 8 gm. daily dose of salicylates produces an increase almost equaling that occasioned by the injection of 20 mg. of delayed-action corticotropin. The hypercorticoidemia caused by salicylates causes increased renal elimination of the 17-hydroxycorticosteroids and the reducing corticoids. The hypercorticoidemia and also the hypercorticoiduria caused by salicylates usually persist for some time after the dose has been diminished and even after medication has been discontinued. The intensity of salicylate hypercorticoidemia suggests that it is concerned in the beneficial effects of intensive, continuous, and prolonged salicylate therapy of the collagen diseases and similar morbid states. The pharmacological properties of salicylates independent of any stimulating effect on the adrenal cortex have until now been studied only in animals and their role in the activity of these drugs remains unknown.

The Dynamics of the Eisenmenger Complex: II. F. W. Kohout, E. N. Silber, J. G. Schlichter and L. N. Katz. Am. Heart J. 50:337-351 (Sept.) 1955 [St. Louis].

Of 20 patients with the Eisenmenger complex reported on by the authors, 11 were males between the ages of 1 and 8 years, and 9 were females between the ages of 2 and 30 years. There were 16 patients with arterial desaturation and 4 with normal arterial saturation. Of the 16 patients, only 3 never showed evidence of cyanosis, while in 13 cyanosis was present constantly or intermittently. The cyanosis as a rule appeared early, either at birth or in the first two years of life; in two patients only, it first appeared at the ages of 17 and 16 respectively. Clubbing was marked in only one of the 16 patients. Cyanosis and clubbing were absent in the four patients with normal arterial saturation, but minimal to moderate dyspnea on exertion was present in two. The electrocardiograms of all 20 patients showed fundamental sinus rhythm or tachycardia. Not a single case of auriculoventricular block was observed. Abnormal P waves were observed in five patients. The finding common to all patients was strain of the right side of the heart, usually isolated but sometimes associated with a conduction defect on the right side, and, in one case, with strain of the left side of the heart. Large diaphasic QRS complexes were observed in only 6 of the 20 patients. Fluoroscopic and roentgenographic findings in the 20 patients varied considerably, but evidence of right ventricular enlargement, large pulmonary arteries, and hypervascularization of the lung field was found in nearly every patient. The heart size varied considerably, from normal to markedly enlarged. Catheterization was carried out in all patients. An interesting finding was the existence of a small but definite systolic pressure gradient between the right ventricle and the pulmonary artery in two patients. The physiology of the Eisenmenger syndrome consists essentially of the hemodynamics of a large interventricular septal defect, wherein the dynamics of muscular contraction are the major determinative factors and wherein a larger number of as yet undefined factors undoubtedly also play a role. An explanation of the pathophysiology of the Eisenmenger syndrome merely on a simple hydraulic principle of two circuits of unequal resistance in parallel is untenable. The increased pulmonary resistance present in this anomaly is of purely fortuitous occurrence. It is most probable that inflammatory changes or a coexistent congenital anomaly is responsible for the anatomic and physiological derangement of the pulmonary circuit. The rapidity and degree with which these changes develop indicate whether the picture presented by any given patient is a partial or complete one of the Eisenmenger syndrome or simply that of uncomplicated interventricular septal defect.

New Early Diagnostic Sign of Phlebitis of the Lower Extremities. T. Ortiz-Ramirez and R. Serna-Ramirez. Am. Heart J. 50:366-372 (Sept.) 1955 [St. Louis].

A new test to explore the clinical signs of the inflammatory and thrombotic processes of the deep veins of the lower extremities was performed in 58 patients, 32 of whom had phlebitis, 6 varicose veins, 12 arteriosclerosis of the lower extremities, 4 thromboangiitis obliterans, 2 postphlebitic disturbances, and 2 nonspecific venous disturbances. With the patient in recumbent position and the extremity to be explored slightly flexed, a sphygmomanometer mercury cuff was applied to the thigh and inflated to a pressure of 4 cm. Hg. Venous hypertension thus was provoked, which in the 32 patients with deep phlebitis produced pain in some place, most often in the popliteal region or the calf. This pain increased in the course of 5 minutes and disappeared almost instantaneously after the pressure was released. The term "cuff sign" is suggested for this special pain. Homan's sign was positive in only 26 of the 32 patients, and results from other tests currently in use to aid in the diagnosis of phlebitis of the lower extremities were positive in a still smaller number of patients. The cuff sign is not to be considered as a pathognomonic sign, since the patients studied were not a homogeneous group and the diagnosis of incipient phlebitis can never be sustained with absolute certainty. Therefore, the value of the positivity of the cuff sign shares the limitations common to all clinical positive signs that reveal the onset of a certain disease. This sign, however, has also been observed in patients with fully developed phlebitis. The venous hypertension artificially produced by the compression of the thigh produces in a few minutes a distention of the subjacent venous system, which induces the same painful effects that other tests, now in use, arouse by mechanical external influences. The cuff sign was not positive in patients with varicose veins. Of the 12 patients with arteriosclerosis of the lower extremities, 4 had a positive cuff sign. Of the four patients with thromboangiitis obliterans, two had a positive cuff sign. Of the two patients with nonspecific venous disturbances, one with a slight subcutaneous rupture of unknown mechanism had a positive cuff sign, while in the other with occlusion of the cephalic vein the cuff sign was negative.

Chronic Pulmonary Disease in Histoplasmin Reactors: A Review of 229 Cases Discovered Through Chest Clinic Examinations. F. C. White. Am. Rev. Tuberc. 72:274-296 (Sept.) 1955 [New York].

A chronic lung disease believed to be benign histoplasmosis, the pattern of which varied from a mild subclinical infection associated with minimal pulmonary infiltration to a moderately severe nonfatal illness with disseminated lung lesions, was observed in 229 patients between the ages of 3 and 76 years in a tuberculosis chest clinic and in a hospital. The observation period varied from 5 to 20 years. Of the 229 patients, all of whom had a positive reaction to the histoplasmin skin test, 123 had a negative reaction and 106 had a positive reaction to the tuberculin skin test. Of 34 patients who were followed up from the onset of the disease, no history of exposure to dust was reported by 17, but a significant relationship between exposure to certain dusts containing organic material and the development of the disease was observed in the other 17 patients, 11 of whom, while engaged in the demolition of a school building in Plattsburg, N. Y., had been exposed to the dust near the habitat of pigeons. Of the 34 patients with established date of onset of the disease, 18 had nondisseminated lesions and 16 had disseminated lung disease. Cough at first was nonproductive in all of them, but was followed by expectoration of a thick, tenacious, white or yellow sputum that usually appeared after four to seven days. Persistent symptoms consisted of dyspnea, lassitude, slight cough, expectoration, chest pain, night sweats, and hemoptysis. Persistent physical signs were found in only 7 of the 34 patients; 4 had rales, 2 ronchi, and in one breath sounds were diminished and could not be voluntarily intensified. On roentgenographic examination, the infiltrate at the onset of both the disseminated and nondisseminated forms of the disease appeared irregularly mottled. After a period of 1 to 20 months the mottled shadows shrank and became nodular, but in 7 of the 34 patients mottled shadows persisted longer than two years. The nodular densities gradually shrank and became spherical or ovoid. Evidence of beginning calcification usually appeared in the center of the nodule after a period of 3 to 15 years. Hilar calcifications were observed three and one-half years after the onset of the disease, but the appearance of these calcifications may be delayed as long as 10 years. Pulmonary histoplasmosis as observed in the 229 patients was usually a mild, self-limiting infection. No deaths occurred during the period of observation. Although a number of patients with disseminated disease, notably those of the Plattsburg epidemic, had a moderately severe illness initially, recovery was the rule without marked interference with normal working capacity. One or more roentgenographic changes indicating a relapse or an unfavorable course of the disease were observed in 7 of the 229 patients. Complement-fixation tests for histoplasmosis were made on blood drawn from 172 of the 229 patients. Of the 172 patients, 105 had a negative reaction to the test, 32 had a doubtful or atypical reaction, and 34 had a positive reaction to the test. Positive results from the complement-fixation tests were most apt to be obtained in patients in whom the shadows in the chest roentgenograms were irregularly mottled, indicating recently active disease. Positive serologic tests for histoplasmosis aided in the diagnosis, especially when a changing titer was found in serial tests. It is noteworthy that benign pulmonary histoplasmosis was not generally recognized as a disease entity until mass roentgenographic and tuberculin-testing surveys were applied to healthy population groups. Although the condition occurs in persons engaged in a wide variety of occupations, farmers and their families and rural residents are most likely to be affected.

Thyroid and Exophthalmos. H. Kutschera-Aichbergen. Wien. med. Wchnschr. 105:568-570 (July 16) 1955 (In German) [Vienna, Austria].

Exophthalmos is the result of stimulation of the hypophysis that is manifested by an increased production of thyrotropic hormone. This hormone not only exerts an effect on the eye but also stimulates the growth of the thyroid; consequently exophthalmos is frequently associated with goiter. Treatment directed at the goiter would be an erroneous approach to the disease, since both thyroidectomy and administration of thiouracil will cause increased stimulation of the hypophysis resulting in an even more abundant excretion of thyrotropic hormone by the hypophysis. Thus the exophthalmos may become worse and this exacerbation may involve a great hazard to the eye. The purpose of the treatment of exophthalmos is to inhibit the secretion by the hypophysis of the thyroid-stimulating (thyrotropic) hormone, rather than to suppress the function of the thyroid. In mild cases of exophthalmos the administration of physiological doses of iodine (200 mcg. daily) will be sufficient, while additional measures consisting of roentgen irradiation of the hypophysis and administration of various drugs, such as diiodothyrosine, 2-thio-5-iodo-uracil (Itrumil), thyroxin, corticotropin (ACTH), cortisone, and para-oxy-propiophenon (Frenon), may be required in severe cases. An illustrative case of this type is described in a 20-year-old woman in whom severe exophthalmos developed with a sudden increase of 11 kg. (24 lb.) in body weight and amenorrhea. The exophthalmos did not respond to repeated irradiation of the hypophysis and of the retrobulbar space with large doses of roentgen rays, nor to the administration of corticotropin and cortisone. Suppression of the hypophyseal secretion could not be obtained by the administration of small doses of inorganic and larger doses of organic iodine. Thyrotoxic symptoms also occurred in the course of a 4-year observation period, which, however, could be controlled by the administration of methimazole (Tapazole) and Itrumil. Resection of the small thyroid was contraindicated because of the risk of causing a malignant exophthalmos. Poor general condition and dyspnea in the fourth year of the disease were improved by tonsillectomy and administration of desoxycorticosterone (Percorten). The exophthalmos then improved with the daily administration of 0.9 gm. of para-oxy-propiophenon (Frenon) and 80 mcg. of iodine. The disturbed function of the hypophysis was apparently restored to normal by this therapy.

Effect of 9α-Fluorohydrocortisone on Adrenal Hyperfunction in Cushing's Syndrome. C. L. Cope and R. J. Harrison. Brit. M. J. **2**:457-460 (Aug. 20) 1955 [London, England].

Goldfien and co-workers' report on the inhibition of the high output of ketosteroids by 9α-fluorohydrocortisone, a halogen-substituted derivative of hydrocortisone, in the adrenogenital syndrome with adrenal hyperplasia (*J. A. M. A.* **158**:517 [June 11] 1955) induced the authors to study the effect of this drug in a 25-year-old man with adrenal cortical hyperfunction (Cushing's syndrome). In this condition, which is associated with excessive hydrocortisone production, it is not known whether cortisone inhibits adrenal function, because adrenal activity is usually judged by blood hormone levels or its excreted metabolites, which are essentially the same as those occurring naturally. 9α-fluorohydrocortisone provides an opportunity to overcome this technical difficulty, since the end-products of its metabolism are likely to be different from those derived from hydrocortisone. In the authors' patient, particular attention was paid to the excretion of hydrocortisone as this seems likely to provide the most sensitive and specific index of changing adrenal function. Hydrocortisone excretion was high, ranging from 400 to 500 mcg. daily, as compared with that in a normal person ranging from 40 to 200 mcg. daily. 9α-fluorohydrocortisone was administered to the patient in daily doses of 2, 5, 10, and 15 mg. An inhibition of hydrocortisone output in the urine was shown by a 50% fall in the output of free and combined hydrocortisone. On withdrawal of 9α-fluorohydrocortisone, there was a prompt return of the hydrocortisone in the urine to its original high level. The most reasonable deduction is that adrenal production of hydrocortisone has been temporarily reduced. The finding that 9α-fluorohydrocortisone can inhibit adrenal activity in patients with Cushing's syndrome caused by adrenal hyperplasia raises hopes that a diagnostic procedure may be developed in this condition similar to that used in the adrenogenital syndrome and that Cushing's syndrome caused by adrenal tumor may prove insensitive to inhibition by 9α-fluorohydrocortisone.

Clinical Features of Acute Inflammation of the Pancreas: Analysis of 94 Attacks in 78 Patients. H. L. Bockus, M. H. Kalser, J. L. A. Roth and others. A. M. A. Arch. Int. Med. **96**:308-321 (Sept.) 1955 [Chicago].

Seventy-eight patients between the ages of 19 and 87 years with acute pancreatitis were admitted to the Graduate Hospital of the University of Pennsylvania Graduate School of Medicine. Forty-four were men with 59 admissions and 34 were women with 35 admissions. In 67 patients pancreatitis was definitely associated with either overindulgence in alcohol or with biliary tract disease. These are the commonest factors related to the causation of acute pancreatitis. Other causes included operative trauma, allergy, and carcinoma of the pancreas. Proved recurrences of pancreatitis were four times more frequent in the alcohol group than in the biliary group. Pain in the epigastrium with radiation to the back, nausea, and vomiting were present in most of the patients. On physical examination the commonest finding was direct abdominal tenderness. Unequivocal signs of shock were observed in only five patients. Visible icterus occurred in 19 of the 36 patients with associated biliary disease. Serum amylase and lipase determination proved to be the most helpful laboratory aid to the diagnosis of acute pancreatitis. Initially it was often impossible to distinguish between acute edema and acute necrosis of the pancreas. A critical analysis of the clinical features of these two groups of cases is given. Prolonged elevation, with or without fluctuation, of the serum pancreatic enzymes while the patient is maintained on an adequate "pancreatic rest" medical regimen was usually caused by a complication such as abscess or pseudocyst. A localized paralytic ileus involving one or more adjacent loops of the small intestine in the left upper abdomen or midabdomen is suggestive but not pathognomonic of acute pancreatitis in survey roentgen pictures of the abdomen. The authors' observations in this series of patients confirmed their previous impression that the acute phase of pancreatitis is best treated by a nonoperative conservative regimen, provided other acute abdominal surgical emergencies can be excluded.

Thrombophlebitis Migrans and Visceral Carcinoma. R. H. Durham. A. M. A. Arch. Int. Med. **96**:380-386 (Sept.) 1955 [Chicago].

Observations concerning the two recognized types of carcinogenic thrombophlebitis collected by Durham from the literature prompted him to make the following statements. Of the two types, one is indistinguishable from classical thrombophlebitis, and the other presents the characteristic lesions of thrombophlebitis migrans. The occurrence of either type, particularly in a man beyond the age of 35 years, warrants a presumptive diagnosis of visceral carcinoma until disproved. Prompt recognition of either of these types of thrombophlebitis may permit detection of carcinoma months earlier than it might otherwise be discovered, thus affording more prompt use of protective anticoagulant therapy and perhaps more successful surgical procedures. Unsuccessful control of thrombophlebitis by ordinary doses of anticoagulants should cause the clinician to suspect the presence of carcinoma. The presence of typical lesions of thrombophlebitis migrans is usually pathognomonic of well-advanced visceral carcinoma. A better understanding of the associated factors concerned in carcinogenic thrombophlebitis should throw new light on the entire problem of thrombogenesis. A more complete analysis of the biochemical changes involved in the causation of these types of thrombophlebitis may also reveal or provide a reliable test for the presence of carcinoma.

Effect of Hydrocortisone on Bone Metastases of Cancers of the Breast and of the Prostate. Gilbert-Dreyfus, M. Zara and Duchange. Presse méd. **63**:1121-1122 (Aug. 20) 1955 (In French) [Paris, France].

It appeared to the authors that part of the excellent palliative results in patients with cancer of the breast with metastases to the bone obtained from bilateral adrenalectomy might be due to the replacement therapy given to these patients in the form of cortisone. The authors' experimental use of hydrocortisone therapy in patients with cancer of the breast and painful bone metastases gave in general excellent results, proving the validity of their theory. Five such case reports are presented, together with one of a patient with cancer of the prostate gland. The results may be as good as those resulting from adrenalectomy and certainly are obtained more simply and cheaply. Virilization of the patient does not occur. The drug can be administered orally. In one instance, its effects have lasted seven months. It is not known whether this therapy influences the development of lesions or is merely analgesic; the same is true for adrenalectomy. Hydrocortisone will deserve a trial as first choice in the palliative treatment of paragenital cancers with painful metastases if it is proved, as indicated by these preliminary observations, that it yields a prolonged survival time without pain.

Study on Survival of Transfused Red Blood Cells in Some Surgical Diseases Before and After the Intervention. L. Cortese. Minerva med. **46**:127-133 (July 11) 1955 (In Italian) [Turin, Italy].

The survival time of transfused erythrocytes was studied in six patients with cancer of the digestive system, in three with gastroduodenal ulcer, in two with acute anemia secondary to hemorrhage, in two with obstructive jaundice, and in two normal persons who served as controls. In the patients with cancer, the test was performed before and after the operation to determine the effect of this on the survival time. Blood from the same donor and in the same amounts was given to all the patients with the same condition. Anti O serum was used, and the method introduced by Ashby in 1919 and later modified by Formaggio and Piovella was followed. The transfused erythrocytes survived in the normal persons 75 days at most, with an average life of 62 days. The number of transfused cells does not decrease gradually but oscillates markedly during the survival time. This was much shorter in the patients with carcinoma of the digestive system. Before the operation the erythrocytes survived for a maximum of 40 days, with an average life of 32 days. The test repeated after the 20th postoperative day revealed that they survived for as long as 60 days, with an average life of 47 days.

Gastroduodenal ulcer, obstructive jaundice, and acute anemia secondary to hemorrhage did not influence the erythrocytes' survival time, which in the patients with these conditions was within normal values.

Anthrax: A Report of One Hundred Seventeen Cases. H. Gold. A. M. A. Arch. Int. Med. **96**:387-396 (Sept.) 1955 [Chicago].

Anthrax occurred between 1933 and 1955 in 117 patients between the ages of 3½ and 62 years, 116 of whom had cutaneous anthrax and one, pulmonary anthrax. The source of infection was contaminated imported goat hair used in the manufacture of interlining of suits. The cases occurred a few at a time, in close succession, and were usually related to the passage of a new batch of goat hair through a clothing mill in which it was used. In the group of patients with cutaneous anthrax, the first patient died, giving a mortality rate of 0.8%. The patient with pulmonary infection died and autopsy findings showed the cause of death to be an interstitial type of pneumonitis. Early recognition of anthrax is essential. Between 1933 and 1939, 21 patients were treated with antianthrax serum, and, between 1939 and 1947, 56 were treated with sulfonamide compounds. Both methods were effective, but severe horse serum sensitivity reactions and reactions to the sulfonamides such as vertigo, hematuria, urticaria, and dermatitis occurred. Treatment with penicillin or broad-spectrum antibiotics was practiced in the remaining 40 patients; it offers the best chance of cure, provided adequate dosage is used. Control of the spreading edema, with subsidence of systemic toxic reactions, is the only reliable yardstick with which to measure adequate dosage. The total dose of penicillin varied from 980,000 to 6 million units, given in from two to seven days. The total dose of chlortetracycline varied from 4.5 gm. given in 24 hours to 20.5 gm. given in eight days. The total dose of chloramphenicol ranged from 2.5 gm. given in two days to 24.75 gm. given in seven days; although effective in treatment of anthrax, the use of chloramphenicol was discontinued after the reports of its depressive effect on hemopoiesis. The total dose of oxytetracycline ranged from 3 gm. given in three days to 29.5 gm. given in eight days and was well tolerated by all patients. The total dose of tetracycline varied from 10 gm. given in five and one-half days to 14 gm. given in eight days. The total dose of erythromycin ranged from 3.2 gm. given in 90 hours to 5.6 gm. given in seven days. The broad-spectrum antibiotics are easy to administer, cause few or no reactions, and make ambulatory treatment of patients with anthrax possible. Chlortetracycline (Aureomycin), oxytetracycline (Terramycin), tetracycline (Achromycin), and erythromycin work equally well and are the drugs of choice in treatment of anthrax, which has lost its past serious connotations.

Shock Associated with Bacteremia: Review of Thirty-Five Cases. W. H. Hall and D. Gold. A. M. A. Arch. Int. Med. **96**:403-412 (Sept.) 1955 [Chicago].

The occurrence of shock associated with bacteremia is reported in 35 patients between the ages of 24 and 77 years. Most of the patients were over 45 years of age. There were 18 deaths, a mortality rate of 51%. The most frequent underlying disease was a malignant neoplasm, and 7 of 11 patients with malignant disease died shortly after the occurrence of bacteremia and shock. The most frequent sources of bacteremia were the genitourinary tract, cutaneous suppuration, the biliary tract, peritonitis, and lobar pneumonia. The most frequent causative agents were Paracolobactrum sp., Proteus sp., Micrococcus pyogenes var. aureus, Escherichia coli, Aerobacter (Klebsiella) sp., and Diplococcus pneumoniae, in that order. Typical signs of shock were present at the onset of the hypotension in 15 of 26 patients. In the others the hypotension was masked by flushing of the skin, bounding pulse, and other circulatory changes caused by the infection; shock appeared late in these patients. Prompt use of effective antibiotics controlled the bacteremia, but shock frequently remained unchanged and often led to death. Blood and plasma transfusions often raised the blood pressure level somewhat but did not reduce the fatality rate. Vasoconstrictor drugs given in large doses were useful in restoring the blood pressure; levarterenol bitartrate and metaraminol were most effective. Steroid hormones did not seem to lessen the shock. Shock and death were not caused by adrenal insufficiency. Signs of cardiac disease that may have contributed to the fatal outcome were observed in 7 of 14 patients on whom autopsies were performed. Widespread damage to small blood vessels and petechiae were often found.

SURGERY

The Management of Spontaneous Pneumothorax. A. G. Marrangoni, C. F. Storey and P. O. Geib. Am. Rev. Tuberc. **72**:257-267 (Sept.) 1955 [New York].

Spontaneous pneumothorax occurred in 80 otherwise healthy persons between 19 and 48 years of age who were admitted to the U. S. Naval Hospital in Portsmouth, Va. Spontaneous pneumothorax should not be considered a completely benign condition, because deaths resulting from it and complications associated with it have been reported. Thoracoscopy as an aid in diagnosis and in selecting the treatment of choice is emphasized. The rupture of a subpleural bleb is the most common cause of idiopathic spontaneous pneumothorax. Of the 80 patients, 55 were treated conservatively, i. e., 49 by bed rest, 4 by needle aspiration, and 2 by needle aspiration and simple underwater seal without active suction. The over-all average time required for reexpansion in these 55 patients was 30 days and the average period of hospitalization was 43 days. The remaining 25 patients were given the following active therapy. A trochar and cannula were introduced into the pleural space with the aid of local infiltration anesthesia. After withdrawal of the trochar, a thoracoscope was introduced through the cannula. After careful inspection of the surface of the collapsed lung and after determination of the cause of the collapse, the thoracoscope was withdrawn and the visceral and parietal pleurae were thoroughly poudraged with sterile talc that was insufflated with a powder blower. A rubber catheter was then placed through the cannula into the pleural space, the cannula was withdrawn, and active underwater seal suction at a negative pressure of 15 to 20 cm. of water was maintained for 24 hours. The patient then was placed on simple underwater seal drainage for an additional 24 hours. Penicillin was given intramuscularly as long as the intercostal catheter was in place. Pleural symphysis was achieved by talc poudrage and active underwater seal suction and reexpansion occurred within a few minutes. The average period of hospitalization required by these 25 patients was three days. This method appreciably decreases the time required for reexpansion. The decreased period of disability among patients thus managed results in saving in money and manpower when compared with conservative methods of treatment. Recurrent pneumothorax occurred in 12 of the 55 patients treated conservatively, but there was not a single case of recurrent collapse among the 25 patients who were given active treatment with talc poudrage and underwater seal catheter suction. Open thoracotomy was performed in three patients because numerous large emphysematous blebs were observed in each of them; this method of treatment is reserved for patients with large emphysematous blebs compressing healthy lung tissue. This is determined by roentgenographic and thoracoscopic examination of the chest. After the authors' paper had been submitted for publication, 27 additional patients with spontaneous pneumothorax were treated by thoracoscopy, intrapleural talc poudrage, and active suction. Prompt reexpansion has been accomplished in all these patients. There have been no complications or sequelae associated with the procedure.

Surgical Treatment of Carcinoma of the Esophagus and Cardia of the Stomach. Wu Y.-K., Howe Y.-L., Hwang K.-C. and Liu K. Chinese M. J. **73**:181-195 (May-June) 1955 (In English) [Peking, China].

Experience in the surgical treatment of 379 patients with carcinoma of the esophagus or cardia is reported. Exploration was carried out in 292 patients and resection in 152. The resectability rate was 52%, and the operative mortality from resection was 18.4%. The youngest patient was 28 years old and the oldest 72. Cancer occurred most frequently in the sixth decade of life (44.1% of the patients). Twenty-nine patients (7.6%) were under 40 years of age. The operative mortality rate increased progressively after the age of 40. Tumors of the lower esophagus had the highest resectability rate (63.8%) and those of the cardia the lowest (13.3%). The operative mortality rate in 48 patients who had resection with supra-aortic anastomosis was 25%; in 81 who had resection with infra-aortic anastomosis it was 16%; and in 15 with total gastrectomy it was 6.6%. Sixty-eight of the patients who had resection had 19 kinds of postoperative complications. Bronchopneumonia developed in 17, with 12 deaths. Perforation and secondary hemorrhage at the anastomosis occurred 10 times and had a fatal outcome 8 times. The results of surgical treatment of these cancers are related to the extent of the growth in each instance. The late results are less favorable and the operative mortality is higher in patients in whom the tumor has extended beyond the wall of the esophagus or cardia. The one-year survival rate in 112 patients was 58.9%; the three-year survival rate in 92 patients was 25%; and the five-year survival rate in 54 patients was 7.4%. In 74 cases in which the tumor was not resected and the patient was followed until death, the average survival period from the onset of symptoms was 9.4 months and from the time of discharge or exploratory operation three months. The prospects of improving the results of surgical treatment of esophageal and cardial cancers lie in earlier diagnosis, earlier operation, and further improvement in operative technique. The combination of postoperative roentgenotherapy with radical surgery may reduce the incidence of recurrence and increase the cure rate.

Treatment of Hemochromatosis by Repeated Venesection: A Follow-Up. W. D. Davis Jr. South. M. J. 48:901-908 (Sept.) 1955 [Birmingham, Ala.].

Three patients with hemochromatosis are described. They were 78, 51, and 52 years old respectively; the oldest was a woman and the others were men. All had been maintained in good health for long periods by repeated bleeding, which they tolerated well. Their nutrition, protein levels, liver function tests, and blood pictures all either showed improvement or remained within normal limits during the period of observation. The woman died of congestive heart failure and had an arteriosclerotic aneurysm of the abdominal aorta. She had voluntarily discontinued having phlebotomies before complete disappearance of iron from the tissues, but unquestionable symptomatic and objective improvement continued for a period of six years after the start of therapy. The second patient eventually developed a primary hepatic cell carcinoma despite the absence of any histologically demonstrable iron in the liver. The third patient was living and well at the time of writing but presented a mild abnormality of the glucose tolerance test and an electrocardiographic abnormality that initially improved when phlebotomies were started. It is not know whether these disturbances are related to his hemochromatosis or not. Thus it is clear that massive phlebotomy stimulating hematopoiesis is capable of producing and maintaining an iron-free state in patients with hemochromatosis. If this state can be reached fairly early in the course of the disease, stability of all manifestations of the disease can be maintained, despite which fact fatal complications may ensue.

Lumbar Disc Protrusion as a Surgical Emergency. B. Fairburn and J. M. Stewart. Lancet 2:319-321 (Aug. 13) 1955 [London, England].

Acute compression of the cauda equina caused by massive protrusion of a lumbar disk may result in permanent paralysis, especially if treatment is delayed; it should, therefore, always be dealt with as a surgical emergency. The histories of patients with this condition usually show three stages: (1) a long period of intermittent backache; (2) later radiation of the pain into one lower extremity; and (3) a final sudden onset of pain and weakness in both lower limbs with disturbance of micturition. The exact site of the disk protrusion in these patients should be determined by myelography, carried out as an emergency procedure within a few hours of admission. Access to the protruded disk can usually be secured by the midline transdural approach and, if the site of the block is marked on the skin at the time of myelography, the operation can be performed with the minimum removal of bone and the least possible interference with the back. Three patients, a 33-year-old housewife, a 63-year-old engineer, and a 39-year-old truck driver, all of whom presented a characteristic history of bilateral compression of the cauda equina, were treated in this manner with excellent results: the two men have gone back to full-time work and the woman is able to carry out her normal household tasks, including the care of her two children.

Treatment of Viral Hepatitis with the Knott Technic of Blood Irradiation. R. C. Olney. Am. J. Surg. 90:402-409 (Sept.) 1955 [New York].

The Knott technique of ultraviolet blood irradiation therapy was used for the treatment of 43 patients between the ages of 8 and 65 years with acute viral hepatitis, 31 of whom had acute infectious hepatitis and 12, acute serum hepatitis. Treatment consisted of withdrawing 1.5 cc. of blood per pound of body weight from the patient, citrating it, and, by means of the Knott hemoirradiator, exposing it to radiant energy between the wave lengths of 2,399 and 3,900 angstrom units as it passes through the irradiation unit at a predetermined rate. The blood was returned to the patient through the needle used for the initial venipuncture. Treatment required from 15 to 20 minutes. An average of 3.28 treatments per patient was administered. The average period of illness after the institution of the treatment was 19.2 days. Clinical recovery was confirmed by laboratory studies. Of the 43 patients, 2 had recurrences, an average incidence rate of 4.65% during a follow-up period averaging three and a half years. No deaths occurred among the 43 patients. A rapid subsidence of nausea, vomiting, anorexia, pain, and jaundice was observed in all patients treated, as well as a coincident trend back to normal of the laboratory studies. Marked improvement was noted in 27 patients within 3 days or less after treatment was instituted, in 11 patients within 4 to 7 days, and in 5 patients within 8 to 14 days. No untoward effects or unfavorable reactions were observed as the result of blood irradiation therapy in these patients; no patient was unable to tolerate the therapy; and none developed a resistance to it. The author believes that the Knott technique of ultraviolet blood irradiation therapy can be relied on to terminate promptly an acute attack of viral hepatitis, to prevent recurrences, and to arrest liver damage as a result thereof.

Resuscitation After 50 Minutes of Cardiac Arrest. E. Fair. Am. J. Surg. 90:419-426 (Sept.) 1955 [New York].

Cardiac arrest occurred in the course of a pneumonectomy for carcinoma of the lung in three patients, one 42-year-old woman and two men aged 47 and 48 years respectively. In the case of the woman, cardiac arrest was brought on by complete occlusion of the trachea by a piece of tumor tissue with resulting anoxia. A free airway was obtained by aspirating the piece of tumor tissue through the endotracheal tube. Administration of 100% oxygen and continued cardiac massage restored the heartbeat with irregular rhythm in 4 minutes and with regular rhythm after another 2 minutes. There were no signs or symptoms of central nervous system damage when the patient was dismissed from the hospital on the 11th postoperative day. In the case of the 47-year-old man, the anesthetist had difficulty keeping the patient well oxygenated. The carcinoma involved all three lobes of the right lung, was attached to the pericardium, and large hilar lymph nodes extending along the trachea made dissection in the region of the pulmonary hilus necessary. While the tumor was being dissected away from the pericardium, the heart ceased to beat. Cardiac massage was instituted immediately, and pulmonary ventilation was accomplished through the endotracheal tube using 100% oxygen. After 5 minutes the heart beat was restored with regular rhythm. The thorax was closed. The patient never regained consciousness postoperatively and died 48 hours after the surgical intervention. A large carcinoma originating in the left lower lobe of the lung of the third patient required pneumonectomy with hilar dissection. Three ligatures were placed around the pulmonary artery, which was then divided between the two distal ligatures. There was an immediate massive hemorrhage, and the heart ceased to beat. After 50 minutes of massage and artificial pulmonary ventilation with 100% oxygen, the heart had the first perceptible beat, which was feeble and irregular. Massage was continued for another 10 minutes, regular rhythm was restored, and the blood pressure returned to the preoperative level. During the 60 minutes, the patient was given 5,500 cc. of whole blood in addition to continuous cardiac massage and administration of 100% oxygen. No procaine, epinephrine, or other drugs were used. While the patient continued to receive 100% oxygen, the lung was removed. Electrocardiograms were interpreted as showing diffuse myocardial ischemia nine days after the surgical intervention. The patient was dismissed 18 days after surgery. Three months after the operation he was examined by a neuropsychiatrist; no signs or symptoms pertaining to the central nervous system were observed. Death from metastasis occurred eight months after pneumonectomy, but there were no sequelae from the cardiac arrest. This case strikingly illustrates the success possible in resuscitating a heart in arrest when proper measures are instituted without delay. In cardiac arrest the diagnosis must be made and proper treatment instituted within 4 minutes if resuscitation is to be successful. The basic factors in producing cardiac arrest are anoxia and vagal stimulation. Since delay is the main factor contributing to failure in resuscitation, a program of management with a cardiac arrest kit should be set up in every busy surgical group, and a program of action should be set up in every hospital to meet this emergency. Prophylaxis will reduce the incidence, and proper management will make possible resuscitation of a greater percentage of patients. Cardiac massage by the thoracic approach and pulmonary ventilation using 100% oxygen are the effective means to prevent serious brain damage. The use of drugs and the administration of whole blood as indicated are valuable adjuncts in therapy. Simple, safe, effective electrical defibrillators are available to treat ventricular fibrillation successfully.

Surgical Treatment of Cardiac Aneurysm. F. F. Niedner. Thoraxchirurgie 3:93-111 (Aug.) 1955 (In German) [Stuttgart, Germany].

A new technique for the surgical treatment of a cardiac aneurysm is described. It was employed successfully in a 57-year-old man with cardiac aneurysm of the left ventricle, which occurred several weeks after an automobile accident; in a 63-year-old woman with cardiac aneurysm of the left ventricle occurring after myocardial infarction; and in a 49-year-old man with aneurysm of the right auricle also occurring after myocardial infarction. The aneurysm of the woman and that of the 57-year-old man were located in the area of the descending branch of the left coronary artery and in that of the circumflex branch of the left coronary artery respectively. In the third patient the aneurysm was located at the base of the right auricular appendage. Thoracotomy was performed through a posterolateral incision over the fifth rib. Since an aneurysm may frequently be located in the area of the phrenic nerve, this nerve together with the mediastinal pleura must be separated from the pericardium. The pericardium was opened by dissecting around the aneurysm at a distance of 1 cm. from the edge of the aneurysm. The adipose tissue in the area of the apex of the heart was kept aside with a suture. A cutaneous flap, which was obtained from the patient's thigh before the thoracotomy was performed, was then placed with its exterior surface on the aneurysm, and the peripheral incision edge of the pericardium was sutured from below to the cutaneous flap in a circular fashion around the aneurysm. The tension that was produced in this way compressed the aneurysm and reduced its size. The phrenic nerve then was placed on the cutaneous flap, whose subcutaneous adipose tissue provided an adequate support for the nerve. The thoracic cavity was closed in typical fashion. In the case of auricular aneurysm a purse string suture was placed around the aneurysm. A simple ligature was placed below the purse string suture while the assistant raised the area of the aneurysm by pulling slightly on the purse string suture. When the ligature was drawn, the aneurysmal sac protruded and had to be incised to prevent laceration. The string of the ligature then was drawn together so firmly that hemorrhage from the incision was stopped but no pressure was exerted on the wall of the auricle. The aneurysm was resected and the area of resection closed by sutures and covered with the cutaneous flap, which then was joined with the pericardium by suture. There were no severe postoperative complications in the three patients. It is still too early for the evaluation of this new surgical technique. It has not been established whether further myocardial infarctions can be prevented and the life of the patient prolonged by this operation. Cardiac aneurysm is not so rare as has been assumed. Patients with cardiac aneurysm are threatened by rupture of the aneurysm, ventricular fibrillation, and embolism. Statistics show that 7 to 9% of patients with myocardial infarction die of cardiac rupture. In about 50% of the cases death results from rupture of a cardiac aneurysm.

Mitral Valve Disease and Mitral Valvotomy. J. F. Goodwin, J. D. Hunter, W. P. Cleland and others. Brit. M. J. 2:573-585 (Sept. 3) 1955 [London, England].

Of 75 patients with mitral stenosis, 58 women and 17 men of the ages between 17 and 58 years, who submitted to mitral valvulotomy between December, 1950, and September, 1954, 56 were followed up for periods ranging from six months to three years. Comparison of the degrees of dyspnea, pulmonary hypertension, and pulmonary vascular disease with the size of the mitral orifice observed at operation suggested that critical mitral stenosis may be expected if there is severe dyspnea and severe pulmonary hypertension. In the presence of disabling symptoms, critical narrowing of the mitral orifice (1.5 cm. or less in diameter) can be best assessed radiologically. If auscultation revealed evidence of a mobile valve and no incompetence, a good split could be predicted. Heavy calcification and signs suggesting a rigid valve militated against a successful valvulotomy. Most patients were greatly improved symptomatically after the operation, but in only one-third of those with good subjective results was there any objective evidence of improvement. Pulmonary vascular disease, assessed radiologically, was not altered in two-thirds of patients with a good result; this observation suggests that valvulotomy, although it may stop the changes, may fail to cause any reversion. There was no constant trend concerning preoperative factors that might have influenced the postoperative results, except that all the patients with grade 2 dyspnea had a good result after a one year follow-up, as compared with a good result in only 50% of those with grade 3 dyspnea. Of the 75 patients, 9 died, 4 at operation or soon after, 3 within six months, and 2 within one year. Of the 56 patients followed up for six months or more, 6 had poor results. Analysis of deaths and poor results in these 15 patients showed that operative factors, such as the production of severe mitral incompetence, tearing of the auricle, ventricular fibrillation, and failure to split a heavily calcified valve, were responsible in 10. In the remaining five, age, coronary artery disease, and chronic unmodified congestive heart failure may have been responsible for the failure of the operation. Active rheumatic carditis, recurrence of stenosis, and pulmonary vascular disease are factors that may influence the result of the operation, but that are difficult or impossible to assess. Severe mitral incompetence, intractable congestive failure, predominant aortic valve disease, and active rheumatic fever are absolute contraindications to mitral valvulotomy. In patients in whom mitral stenosis and aortic stenosis are associated, surgical techniques now permit combined mitral and aortic valvulotomies.

Sympathectomy for Occlusive Arterial Disease. G. H. Pratt. J. Am. Geriatrics Soc. 3:580-588 (Aug.) 1955 [Baltimore].

Occlusive arterial disease is admittedly progressive, but its progress can often be retarded by sympathectomy. The operation is not lethal, even in patients of advanced age; 11 (3%) of the author's 368 patients died, but in none of these did the operation per se appear to contribute to the death. Six died of coronary occlusion, one of progressive gangrene, three of generalized arteriosclerosis, and one of mesenteric thrombosis. The operation is most safely performed under spinal anesthesia. Many of the older patients who would not have been able to withstand a general anesthetic underwent sympathectomy successfully with spinal anesthesia; in fact, only one death occurred among the 30 patients who were over 80. Neither Pentothal nor any other general anesthetic should be used to augment the spinal anesthesia. The sympathectomy must be complete: every lumbar ganglion, including the 5th, if it exists, and often the 12th dorsal, and each nerve filament that makes up the plexus should be removed. The poor or equivocal results reported by many clinics after sympathectomy are probably due to inadequate extirpation of the sympathetic innervation. Extensive and rapidly progressing disease, advanced age, severe cardiac, renal, or diabetic complications, persistence in smoking, further trauma, and sepsis or gangrene already present at the time of sympathectomy, all play an important part in the success or failure of the operation. The total amputation rate in the 250 patients in this series who underwent sympathectomy for occlusive arterial disease was 19%, or a total of 64 amputations. Some of the patients were subjected to sympathectomy in the hope that amputation might be performed at a lower level than would otherwise have been possible and in the 28 who had amputation below the knee this hope was justified. Gangrene, pain at rest, and ulceration were the most serious symptoms prognostically and they occurred in that order. Amputation will be required in two out of three patients with active gangrene, not because of the sympathectomy, but in spite of it. Gangrene occurring after sympathectomy is due either to disease that was already irreversible or to occlusion caused by operative trauma. Most (198) of the patients were operated on for advanced claudication and coldness; only 8 (less than 4%) of these required amputation.

Isotope Techniques for Mediastinal Tumors. R. D. Swedenburg, W. M. Tuttle and K. E. Corrigan. A. M. A. Arch. Surg. **71**:372-382 (Sept.) 1955 [Chicago].

There is a consensus that all mediastinal tumors should be surgically excised except for the lymphoma group, best managed by irradiation therapy. Since 1947, radioactive isotopes were used extensively at Harper Hospital, Detroit, for the tracer approach to the problem of a confusing mediastinal mass. A standard dose of 50 μc of radioactive iodine (I^{131}) in solution was given orally to the patient in a fasting state. Close contact scanning with the Geiger-Mueller counter was started two hours after the administration of the tracer substance. The instrument was maneuvered over the skin surface, beginning in the normal thyroid region and working systematically over the cervical region and progressing caudally over the chest in a symmetrical pattern for the right and left sides. Scanning was also done over the liver, epigastrium, and other organs in a routine manner. The tracer study was repeated at approximately six-hour intervals for a total of not less than three complete counts the first day. The following day 24-hour and 32-hour counts were taken and, depending on the information derived, the study was extended to 48 or 52 hours. If the lesion in question was not of thyroid origin (this could be tentatively assumed from the early sequential counts) this tracer substance rapidly cleared from the blood stream, making other studies possible. A dose of 100 μc of radioactive phosphorus (P^{32}) in solution was then given orally to the patients. Close contact scanning was started 24 hours after administration of the tracer dose. The data obtained were charted in counts per minute according to the surface topography of the recorded counts, and a second complete count was taken 48 hours later. The bony structures in particular were surveyed to establish a base-line count. The important criterion is that a given localization count must be repeatable to be considered valid. In the authors' patients in whom radioactive isotopes were used preoperatively, 27 cases of tumor of thyroid origin and 28 cases of mediastinal tumors other than thyroid were identified; 288 cases of widening of the upper mediastinum were traced to retrosternal extension of the thyroid. Five illustrative cases are described. The authors feel that by accurate isotope technique the mediastinal lesions can be preoperatively categorized in three groups: (1) thyroid, (2) new growths with increased cellular activity, and (3) benign growths or anatomic abnormalities. The tracers can be used effectively to aid in planning the surgical approach to the lesion. It can be of benefit during the surgical procedure to locate involved tissue that may otherwise be overlooked. Since the predilection of the two isotopes seems specific and the physical capacity of the Geiger-Mueller counter to detect the presence of their radiations as to concentration in a given localization is physically accurate, the degree of accuracy depends on interpretation of the end-results. At present the interpretations have been gratifying, and, with continuing cooperation between the clinician and the radiological physicist, a standard diagnostic test, or at least a valuable diagnostic aid, may be developed.

Exploratory Thoracotomy in Chronic Lymphadenitis of the Mediastinum. T. R. Leech, C. V. Meckstroth and K. P. Klassen. A. M. A. Arch. Surg. **71**:383-394 (Sept.) 1955 [Chicago].

Of 33 patients between the ages of 8 and 71 years with chronic mediastinal lymphadenitis, the offending lymph node was considered parabronchial in location in 12, paratracheal in 12, and paraesophageal in 9. While some of the lesions were detected on routine roentgen ray examination of asymptomatic patients, most of the patients had severe symptoms including hemoptysis, superior vena cava occlusion, and dysphagia, suggestive of malignancy. Exploratory thoracotomy was carried out for the purpose both of diagnosis and of the correction of abnormalities produced by chronic lymphadenitis of the mediastinum. A large calcified mediastinal lymph node presenting no symptoms does not require surgical intervention. Patients with such lesions should be reassured, since too much stress placed on the presence of these tumors may lead to subjective symptoms. Patients with symptoms caused by compression, obstruction, or constriction of the adjacent mediastinal structures shoud have definitive surgery for correction of the abnormality. Results of bypassing procedures for the relief of superior vena cava occlusion have thus far been disappointing. The elevated venous pressure of the head and upper extremities was well tolerated by the authors' patients. Until grafting procedures are more successful, surgery for this condition appears unjustifiable. In tracheal and bronchial compression, surgery becomes necessary for the purpose of exact diagnosis and for relief of the compression. Early surgical intervention may prevent irreparable damage to distal bronchopulmonary tissue. The surgical treatment of enlarged mediastinal lymph nodes, either calcified or noncalcified, may present considerable technical difficulties. Because of marked pericapsular reaction, these nodes are firmly adherent to adjacent structures, such as the vena cava, trachea, bronchus, or esophagus. Attempts at complete removal may lead to disastrous sequelae unless caution is observed. In lymphadenitis without calcification, only biopsy of the lesion is advisable, while in those lymph nodes containing a large amount of necrotic amorphous material, excision of the major portion of the tumor should be performed, leaving behind the fibrous wall that is firmly adherent to the adjacent structures. In none of these patients was there dissemination of infection by fragmentation of the tumor or because a portion of the wall of the capsule was left behind.

Duodenal Ulcer Treated by Vagotomy and Gastro-Enterostomy: Results of 100 Consecutive Cases. G. F. Henson and C. G. Rob. Brit. M. J. **2**:588-589 (Sept. 3) 1955 [London, England].

Seventy-eight men and 22 women with duodenal ulcer were subjected to a posterior gastroenterostomy combined with resection of at least 1 in. (2.5 cm.) of the vagus nerves and their branches after mobilizing and withdrawing into the abdomen the subdiaphragmatic portion of the esophagus. One patient died of coronary thrombosis immediately after the operation, 10 were lost to follow-up, and 89 were followed up for varying periods and for an average time of 29 months. Excellent results were obtained in 33 patients (37.1%) who subjectively and objectively were completely free from any dyspepsia or post-vagotomy and gastroenterostomy syndromes in the immediate postoperative period. Good results were obtained in nine patients (10.1%) with temporary postoperative disturbances that disappeared completely. Persistent postvagotomy and gastroenterostomy syndromes with or without dyspepsia occurred in 30 patients (33.7%). Persistent dyspepsia without postoperative syndromes and with unproved recurrence of ulceration was observed in five patients (5.6%). There were recurrent peptic ulcers in 11 patients (12.4%) and in 8 of these the presence of the ulcers was confirmed at operation. Because of the high recurrence rate in the course of a relatively short follow-up period and the high incidence of postoperative syndromes, vagotomy combined with gastroenterostomy is considered an unsatisfactory operation for duodenal ulcer. If the operation demands for its greater success a highly specialized technique, the authors still consider it unsatisfactory; any operation for such a common disorder must stand or fall by the results obtainable in average hands.

NEUROLOGY & PSYCHIATRY

Poliomyelitis in Stockholm, Particularly 1953 Epidemic. J. Ström. Nord. med. **54**:1071-1072 (July 14) 1955 (In Swedish) [Stockholm, Sweden].

The number of cases of paralysis in the 1911-1913 poliomyelitis epidemic in Stockholm was 51 per 100,000 inhabitants; in the 1953 epidemic it was 83 per 100,000. The increasing shift toward the older age groups was marked. The incidence was higher in males than in females, and the highest incidence was in the upper social class. Of the 968 cases of poliomyelitis treated in Stockholm's epidemic hospital 633, or 65%, had paralysis. The initial stage of the disease was characterized by moderate fever and either general symptoms or mild symptoms from the upper respiratory tract, rarely by gastrointestinal disturbances. The degree of severity of spinal paralysis and the frequency of involvement of cranial nerves 9 to 12 increased with the age. Respiratory insufficiency due to spinal and/or bulbar paralysis occurred in 144 patients, of whom 89 were given respirator treatment, 23 were treated exclusively in cuirass respirator, and 66, with tracheotomy and positive pressure respirator. In contrast to the unusual extent and grave character of the epidemic, the lethality was the lowest known in Stockholm, being 4.3% in the paralytic cases, 18.8% in the cases with respiratory insufficiency, and 30.3% in the cases treated in respirator. After about a year, 50% of the patients given respirator treatment had wholly or partly regained the ability to work, 25% were completely incapacitated but released from respirator, and 25% were wholly or partly dependent on respirator. Follow-up of all cases of paralysis showed that after about a year more than half the patients were fully able to work, most of them completely recovered.

Regenerative Phenomena in Muscle Innervation in Poliomyelitis and Amyotrophic Lateral Sclerosis. G. Wohlfart. Nord. med. **54**:1075-1078 (July 14) 1955 (In Swedish) [Stockholm, Sweden].

On the basis of experimental investigations in mouse encephalitis and study of the relations in the muscles in amyotrophic lateral sclerosis, Wohlfart concludes that in recuperation in poliomyelitis not only do regeneration of the motor ganglion cells and hypertrophy of unharmed muscle fibers play an important part but a third mechanism seems to be significant, namely a regeneration of nerve fibers in the denervated muscles through branching of remaining nerve fibers, the process called sprouting. To improve the methods of treatment of poliomyelitis the factors that can promote sprouting should be closely investigated.

Poliomyelitis Epidemic in Sweden in 1953, Especially in Stockholm and Environs: Epidemiologic Review. H. Dagulf. Nord. med. **54**:1082-1089 (July 14) 1955 (In Swedish) [Stockholm, Sweden].

The first extensive poliomyelitis epidemic in Sweden since 1911-1913 occurred in 1953 with 4,945 cases, of which 3,344 or about 60% were paralytic. In Stockholm the poliomyelitis curve showed a peak for the ages 4 to 8 years and a second, lower peak for the 20 to 25 age group. The incidence of paralysis was higher in adults than in children. The epidemic flared up simultaneously in Stockholm and the suburbs. The morbidity was considerably higher in the suburbs than in the city. In Stockholm multiple cases in households occurred in 80 families, with a total of 176 cases. The average interval between cases in a household was almost five days. The average incidence of poliomyelitis in Sweden for the last 20 years was 23 cases per 100,000 inhabitants; for the United States it was 13. In 1953 the rate in Sweden was 71 cases per 100,000 inhabitants.

Rubella Encephalitis. P. Schleisner, J. Thorsteinsson and I. Bøgeskov-Jensen. Dan. med. bull. **2**:101-106 (July) 1955 (In English) [Copenhagen, Denmark].

The authors find 75 cases of rubella encephalitis recorded to date. The neurological symptoms usually appear on the third or fourth day after the exanthem. Acute onset with development of severe symptoms of encephalitis is characteristic. Early in 1955, four patients with the disorder were admitted to Horsen Municipal Hospital. The first two patients had typical grave cases; in the third case the main symptom was paresis of the lower extremities. Rubella encephalitis cases appear in groups, and diagnosis in the fourth case was possible because of the three cases preceding. Here serious symptoms set in some weeks after German measles had paved the way. The acute start, the meningeal reaction and the moderate changes in the spinal fluid and finally the complete recovery are typical. There was acute intoxication of the liver cells with hyperlipemia; as the encephalitis took its benign course the liver function became normal. Treatment with cortisone and chlorpromazine is believed to have been lifesaving in the first case, where the temperature reached 41.7 C (107.06 F). On vital indication, 50 mg. cortisone and 25 mg. chlorpromazine were given intramuscularly and repeated after an hour and given four times in all during the critical 24 hours, after which recovery occurred. As the patient was unconscious and slightly cyanotic during the treatment, oxygen was administered continuously, with intermittent suction in trachea. This is the first instance of rubella encephalitis where the patient pulled through after fever of 41 C (106 F). In the second case, with fever of 39.7 C (103.46 F), 25 mg. cortisone and 12½ mg. chlorpromazine were given intramuscularly; continued treatment with the substances in the dosage named kept the temperature down till spontaneous fall on the third day. In both cases the fluid balance was accurately controlled and regulated. Treatment of the last two cases was symptomatic.

Encephalitis Following Rubella: Report of Eight Cases. M. B. Jorgensen. Dan. med. bull. **2**:106-110 (July) 1955 (In English) [Copenhagen, Denmark].

In the eight cases described, in patients aged 7 to 33, with encephalitis following rubella, the interval between outbreak of the exanthem and onset of encephalitis was from less than 24 hours to six days. Four of the cases occurred in a 1955 epidemic. In four patients the disease was comparatively mild and short. The other four patients were delirious or in coma for from three to six days and recovery was slower. One patient was in a critical condition for several days. There were no deaths. On discharge the patients seemed mentally normal. Cerebral involvement in rubella is rare. The state of consciousness is practically always affected, the condition varying from sluggishness to coma. This together with recent history of rubella is the mainstay in diagnosis. The spinal fluid may be normal, but as a rule the majority of cases show mild to moderate pleocytosis, moderately high protein, and normal spinal sugar. Etiology and pathogenesis are unknown. There is no causal therapy. Energetic symptomatic and supportive treatment is in order, to be directed against hyperpyrexia, dehydration, and shock and to ensure adequate nutrition and free air passages. In respiratory failure, artificial respiration and even tracheotomy should be considered.

First Contributions on One Hundred Sixty Transorbital Leukotomies of Fiamberti. G. Meneghel. Minerva chir. **10**:529-530 (June 15) 1955 (In Italian) [Turin, Italy].

A total of 160 transorbital leukotomies according to Fiamberti's method were performed on 151 patients at the psychiatric hospital at Feltre in Northern Italy. The following diagnoses were made: schizophrenia and dementia, 93; senile psychosis, 14; psychopathic personality, 13; phrenasthenia, 13; epileptic psychosis, 6; affective psychosis, 9; and syphilitic psychosis, 3. The patients' ages ranged from 11 to 78 years (10 were older than 72), and the conditions had been present in them for from 3 to 20 years. Electroshock therapy, malaria therapy, prolonged sleep, and other therapies that had been previously used for most of these patients did not attenuate their symptoms. A total remission of the symptoms or a remission that permitted the patient to resume the activities in which he was engaged before his illness was brought about by the intervention in 51 patients. The behavior of 54 patients was improved, and hospital assistance became much easier. The condition of 46 patients remained unchanged, and one patient died from cerebromeningeal hemorrhage with ventricular flooding. A second intervention was performed in nine of the patients at least eight months after the first. Among the postoperative complications, which were never too severe, were headache for two to three days, especially in patients with a thick orbital roof; vomiting; slight meningism; elevated temperature; psychomotor excitation, especially in patients in whom anesthesia had been induced by the intravenous administration of barbiturates; convulsive attacks, in epileptic patients in the first 10 to 12 postoperative hours; insomnia or drowsiness; slight oozing of fluid; anuria for 20 to 22 hours; bradycardia; and incontinence of six to seven days' duration. Memory alterations or degenerative changes in personality were not observed. Anxiety disappeared in all the patients, and pain and psychological blocking were benefited. Meneghel states that leukotomy should aim at checking the symptoms rather than the disease itself, except in the case of agitated melancholia, and that when the remission is not complete psychotherapy and specific therapies should be given afterwards. The patient in whom the postoperative remission is complete should be discharged early; keeping him in the hospital environment for which he is no longer suited could suggest to him the suspicion of a relapse and hasten it.

GYNECOLOGY & OBSTETRICS

The Effect of Normal and Toxemic Pregnancy on Blood Pressure. A. J. B. Tillman. Am. J. Obst. & Gynec. **70**:589-603 (Sept.) 1955 [St. Louis].

The importance of hypertensive vascular disease in obstetrics has been fully established, but opinion is still divided in regard to three fundamental questions. 1. Does toxemia of pregnancy incite hypertension? 2. Does it aggravate hypertensive disease when it is present? 3. Does it arise in a person in whom hypertension is destined to develop? Studies of the interrelationship of blood pressure and toxemia of pregnancy are subject to errors inherent in the characteristics of blood pressure values. These characteristics are: (1) lability in both normal and abnormal range, (2) association of a temporary elevation with future sustained elevation, and (3) lack of a universally accepted definition of the lower limit of hypertension. The discovery that blood pressure levels often decline during pregnancy made it advisable to reexamine the relationship of hypertension to toxemia of pregnancy, using only patients whose blood pressures had been documented before a carefully observed first pregnancy and for whom follow-up data were available. First pregnancy observations were used in order to avoid (1) the possible influence of the unobserved pregnancy, (2) the extraneous causes of hypertension that might arise in the interval between pregnancies, and (3) the possible effect of age. The variables of pregnancy, toxemia, and hypertension could thus be kept to a minimum and the relationship between them more clearly defined. The collection of cases began about 1937 and the material finally selected for study consisted of 240 patients with normal and 137 with toxemic pregnancies. The range of observation varied from 21 months to 10 years. An unavoidable result of the fact that the blood pressure readings had to be obtained wherever possible was that they were taken by many different persons under ambulatory and hospital conditions and occasionally in the presence of febrile or convalescent states. Casual readings, however, reflect daily variations more accurately than do the so-called basal readings. Classification and analysis of the data showed that (1) the woman who has a normotensive pregnancy is essentially a normotensive person; (2) the woman who exhibits hypertension solely in pregnancy was hypertensive before pregnancy; and (3) the woman who exhibits the preeclamptic syndrome in pregnancy (hypertension, albuminuria, and edema) may have been either normotensive or hypertensive before pregnancy, and her postpartum blood pressure will reflect her prepregnancy state. Additional findings were that the duration and severity of toxemia of pregnancy are not factors in the production of post-toxemic hypertension and that hypertension is not permanently increased by toxemia of pregnancy. Blood pressure values decrease in the first and second trimesters in both normal and toxemic pregnancy and this fact, together with the variability of the blood pressure, often results in failure to recognize the hypertensive state, which in most cases is responsible for the appearance of hypertension after toxemia of pregnancy.

Thrombotic Thrombocytopenic Purpura Occurring in Pregnancy. P. F. Miner, R. L. Nutt and M. E. Thomas. Am. J. Obst. & Gynec. 70:611-617 (Sept.) 1955 [St. Louis].

Thrombotic thrombocytopenic purpura is a rare disease of unknown origin that has never before been reported as occurring in pregnancy. It is characterized by fever, hemolytic anemia, mild icterus, thrombocytopenia, and central nervous system manifestations, including headache, mental confusion, delirium, coma, convulsions, aphasia, and hemiplegia. Postmortem examinations have disclosed multiple acellular thrombosis in the smaller arterioles and capillaries. These characteristic lesions are widespread and are found most frequently in the heart, lungs, adrenals, kidneys, and brain. The extent to which the different organs are affected, however, varies with each patient. Urticaria and drug sensitivity suggestive of an allergic origin for the disorder have been noted in several cases. The authors' patient, a 19-year-old white primipara in the eighth month of pregnancy, was admitted to the hospital in April, 1954, complaining of headache, generalized edema, nausea, vomiting, and lower abdominal cramps. Her history was noncontributory and no significant hematological or renal abnormalities were found in her family history. A complete blood count, bleeding time and coagulation time determinations, serologic test, and routine urinalysis obtained before the removal of a pilonidal cyst the previous October had all been within normal limits. The pregnancy was marked by a short period of vaginal bleeding in mid-December, after which it proceeded uneventfully until March 25, when she complained of burning pain on urination. Urinalysis showed innumerable white blood cells per high power field and 5 to 10 red blood cells. She was given a short course of therapy with Mandelamine and the urinary symptoms subsided. She first noted edema, beginning at the ankles and later spreading to the face and hands, one week before admission to the hospital. Her urinary output was decreased, and generalized weakness and headache developed two days before admission. The membranes had ruptured just before she was admitted and about three hours later she spontaneously delivered a viable 3 lb. 12 oz. (1,701 gm.) infant. Anemia and low-grade uremia were present during the first few days of her illness and were followed by oliguria. All attempts at treatment were ineffective and on the 11th hospital day she died. The diagnosis, which required differentiation from glomerular nephritis, lower nephron nephrosis, acute leukemia, and toxemia of pregnancy, remained controversial throughout her illness and was in doubt until the microscopic sections were examined by the pathologist. Death was apparently due to renal failure, although the fever, anemia, thrombocytopenia, and neurological signs characteristic of thrombotic thrombocytopenic purpura were also present. The development of renal failure in these patients seems to be the exception rather than the rule; in only one other instance has a significant degree of uremia been present in a patient dying with this syndrome.

Congenital Malformations and Rubella During Gestation. R. Clément. Presse méd. **63**:1109-1110 (Aug. 13) 1955. (In French) [Paris, France].

A review of the literature concerning the effects on the fetus of maternal rubella contracted during pregnancy shows that these effects vary according to the point of development at which the disease occurred. The virus has a predilection for each organ at the time of its differentiation. Damage to the fetus is most likely to occur early in pregnancy, but there have been reports of malformations after rubella late in pregnancy, e. g., mongolism in the child of a woman who contracted the disease between the seventh and eighth months. The author advocates the use of seroprophylaxis in pregnant women who have been exposed to rubella, perhaps even in all pregnant women who have never had the disease. Since the protection afforded by the gamma globulins does not appear to be too dependable, it would be better to use gamma globulins from persons who have had the disease. These substances should be injected at the end of the first month of pregnancy and if necessary again 20 days later, *since the second month is the most dangerous period for the fetus.*

Therapy in Secondary Amenorrhea: Combined Estrogen and Progesterone Treatment According to Zondek. P. Lange. Nord. med. **54**:1169-1170 (July 28) 1955 (In Danish) [Stockholm, Sweden].

According to Zondek combined estrogen-progesterone treatment can bring about menses in patients with secondary amenorrhea of not too long duration. The advantage of the method is partly in the short time of treatment, simple application, and certain effect and partly in that the amounts of estrogen administered are so small that there can be no inhibiting effect on the hypophysis. It is a substitution therapy that can be safely continued for a long time, can perhaps carry the patient over the critical period till spontaneous recovery sets in, and may possibly accelerate recovery. Of Lange's 13 patients, aged from 18 to 42, with amenorrhea for from 3 to 11 months, 9 were treated with injection only, 2, with tablets, and 2, with tablets followed by injection or vice versa. In all cases menstruation resulted. The combined treatment was applied in seven cases of oligohypomenorrhea with resulting regulated and amplified flow.

Implantation of Placental Tissue, According to Filatow. H. Holkup. Wien. med. Wchnschr. **105**:624-626 (Aug. 6) (In German) [Vienna, Austria].

Between November, 1949, and December, 1950, implantations of sterilized pieces of placental tissue, the size of the terminal phalanx of the thumb, into the subcutaneous tissue of the skin of the abdomen, were performed with the aid of local anesthesia in 36 women who were admitted to the first gynecologic clinic of the University of Vienna. According to Filatow's method, the placental tissue was stored for seven days in a sterile dish at temperatures of 2 to 4 C (35.6 to 39.2 F). It was then cut into small cubes that were sterilized in the autoclave at a temperature of 120 C for one hour, and after that the cubes were stored in the refrigerator until transplantations were carried out. The substances contained in the placental tissue are either destroyed or transformed during the long low temperature storage, but new substances are formed in a defense reaction of the placental tissue against the prolonged cooling. These new substances, for which the term "biogenous stimulants" was coined by Filatow, are thermostabile and therefore not affected by the sterilization process; they stimulate the regeneration and the biochemical processes of the body. Of the 36 women, 29 had pruritus vulvae, one nymphomania, 2 pluriglandular insufficiency with intermittent amenorrhea, one hyperemesis gravidarum, and 3 psoriasis. In 3 patients the implantations were repeated at four to seven week intervals; only one implantation was carried out in each of the other 33 patients. Eight of the 36 patients were lost to follow-up, but in 28 patients follow-up examinations were made after three to four years. Complete recovery had occurred in nine patients, five were improved, six were temporarily improved, and eight were therapeutic failures. Of the therapeutic failures, seven had pruritus vulvae associated with more or less marked kraurosis, and one had hyperemesis gravidarum. Of the three patients with psoriasis, only one could be followed up; in this patient, the lesions disappeared gradually within six months. She remained free from complaints for 18 months, and then the lesions reappeared gradually at the same locations as before the placental transplantation. In one 74-year-old woman with pruritus vulvae and asthma, the pruritus subsided completely and the asthma was improved. It is emphasized that all 36 patients had been resistant to any other treatment that was tried before the placental transplantations. Since placental transplantation is neither time-consuming nor expensive, it should be given a trial in therapy-resistant cases.

Endometriosis of Navel. F. R. Merchante and A. E. Heitzmann. Sem. méd. **62**:30-32 (July 7) 1955 (In Spanish) [Buenos Aires, Argentina].

Endometriosis of navel is rare. A woman 39 years old requested treatment for an umbilical hernia. Questioning and clinical examination elicited the following information. Four years prior to consultation, the patient had a laparotomy for removal of an ovarian cystic blastoma. One year after the operation a hernia appeared on the cicatricial zone of the laparotomy, near the navel. The hernia contained a tumor that grew and caused pain and bleeding during menstruation. A diagnosis of endometriosis was made. The operation consisted of resection of the hernia and tumor, by Mayo-Zeno's technique that includes grafting of the lower aponeurotic flap over the superior one. The histopathological study of the tumor confirmed the diagnosis of endometriosis. The patient has been observed for three years after the operation. She is in good health.

PEDIATRICS

Diagnosis of Innocent Heart Murmurs in Children. P. H. Rhodes. GP **12**:69-71 (Aug.) 1955 [Kansas City, Mo.].

The commonest innocent murmur observed in children is a systolic vibratory sound heard best in the third left intercostal space near the sternum. While the vibratory murmurs are occasionally heard in infancy, they become prominent after 2 or 3 years of age and are most characteristic between 3 and 7 years. Then they gradually diminish in intensity toward adolescence. Innocent murmurs are often not heard in the upright position or are heard better in the supine than in the upright position. They are heard better in held expiration and after exercise. The innocent murmur is probably mistaken most often for the murmur of mitral insufficiency. The latter is of maximal intensity at the apex, and this difference in location of the maximum intensity of the murmur is of great help in the differential diagnosis. Sometimes a loud third heart sound or a venous hum is mistaken for a diastolic murmur. Close attention to auscultatory findings usually is enough to establish that these extraneous sounds are indeed innocent.

Use and Misuse of Cortisone and Corticotropin (ACTH) in Pediatrics. B. Gans. Medizinische, no. 33/34, pp. 1126-1129 (Aug. 20) 1955 (In German) [Stuttgart, Germany].

Of nine children treated with cortisone and corticotropin, one 12-year-old boy had acute rheumatic fever; one 10-year-old girl had typical anaphylactoid purpura; one child had acute glomerulonephritis; another one with chronic mixed nephritis had chronic edema, albumin, red blood cells, and cylinders in the urine, hypertension, and urea in the blood; still another had nephrosis with edema and albuminuria; one 2-year-old girl had Hand-Schüller-Christian disease; two infants had bronchiolitis; and one 11-year-old girl had pseudohermaphroditism. Despite the administration of fairly large doses of cortisone, temperature, pulse, and blood sedimentation rate were not favorably influenced in the boy with acute rheumatic fever, who had rheumatic peritonitis and pericarditis; he even had a recurrence in the course of cortisone therapy, and the disease progressed inexorably. Administration of corticotropin did not exert any favorable effect on the patient with anaphylactoid purpura; it did not prevent nephritis, intrapericardial hemorrhage, auricular fibrillation, cardiac decompensation, and death. These two patients had typical adaptation diseases. In cases of rheumatic fever less severe than that in the author's patient damage to the cardiac valves might be prevented by cortisone therapy, but further investigation of this point is needed. There is general consensus that neither purpura nor nephritis can be influenced by cortisone or corticotropin. The two patients with acute glomerulonephritis and chronic mixed nephritis were therapeutic failures, while increase in body weight was followed by diuresis in the patient with pure nephrosis who remained symptom-free for two years after cortisone administration was discontinued. The patient with Hand-Schüller-Christian disease was given cortisone in doses of 50 mg. per day, and this dose was reduced to 37.5 mg. when moon face appeared. Although exophthalmos remained unchanged, the patient's general condition improved, new foci in the skull did not develop, and there was new bone formation in the centers. An attempt was made to discontinue the administration of the cortisone after 13 months of hormone therapy. Within three months considerable deterioration occurred, which proved that cortisone therapy had exerted a favorable effect on the patient's condition. In the two infants with bronchiolitis, each of whom received 100 mg. of cortisone in addition to oxygen and antibiotics, the nonspecific antitoxic and antiallergic effect of the hormone kept the patients alive until the other therapeutic measures became effective. In the patient with pseudohermaphroditism, excretion of 17-ketosteroids rapidly decreased after the institution of cortisone therapy. After four months of therapy, acne and abnormal pigmentation improved and the mammae developed in the patient who had had a virile body build. Menstruation occurred for the first time after six months of cortisone therapy. There is increasing skepticism regarding the usefulness of cortisone and corticortopin in patients with the so-called adaptation diseases or stimulation syndrome. It is recognized that symptoms can be suppressed, but it appears that the hormones are curative only in rare cases. Occasionally they may be lifesaving in patients with severe infections and acute adrenocortical deficiency. There are a few rare diseases, such as certain endocrinopathies, reticuloses, and xanthomatoses, that may be favorably influenced by these hormones.

The Effect of Intensive and Prolonged Therapy with Cortisone and Hydrocortisone in First Attacks of Rheumatic Carditis. M. Markowitz. Pediatrics 16:325-334 (Sept.) 1955 [Springfield, Ill.].

Cortisone or hydrocortisone was given orally in large doses to 39 children between the ages of 4 and 14 years and one 18-year-old girl with clinical evidence of carditis in the course of first rheumatic attacks. Three dosage schedules were employed with minor variations; the total dose of the hormone ranged from 13 to 25 gm., with an average total dose of 16 gm. Duration of treatment varied from nine weeks to 12 months. Of these 40 patients, 29 received treatment within three weeks of the onset of their illness. After follow-up periods ranging from 6 to 22 months, 24 of the 29 patients had no evidence of heart disease. Patients with severe or mild carditis responded equally well. Of the 11 patients who were treated later than three weeks after the onset of their illness and who did less well, only 2 had normal hearts; 8 had rheumatic heart disease; and one patient died. The results obtained in the author's patients suggest that cortisone, given early in the course of the rheumatic attack in doses sufficiently large to suppress the inflammatory reaction completely and continued until the disease has run its course, may reduce the incidence of residual heart disease. Further studies on a larger series of patients with adequate controls are needed to establish the value of this regimen. Serious side-effects such as hypertension, infections, personality changes, and fluid retention developed in 11 of the 40 patients. In four the symptoms were of sufficient severity to necessitate cessation of therapy. In the remaining seven patients the untoward reactions were controlled by reducing the dosage of the steroid.

Pulmonary Hyaline Disease of Infants. G. M. Martin and R. H. More. Canad. M. A. J. 73:273-277 (Aug. 15) 1955 [Toronto, Canada].

The autopsy records of 30 stillborn infants and of 51 liveborn infants who died within the first 48 hours of life were studied. No evidence of resorption atelectasis or hyaline membrane formation was present in any of the stillborn infants, while these changes were observed in 17 (33%) of the 51 liveborn infants. Of the 17 infants, 10 were born prematurely. The clinical and pathological features of infants dying of pulmonary hyaline membrane disease are characteristic. The entity is found most commonly in liveborn infants and is present more often in premature than in full-term infants. Death occurs, after a period of normal behavior, from one to two hours up to four to five days after birth. The lungs are of normal size, firm, and reddish-purple, showing the microscopic features of resorption atelectasis with irregular layers of homogeneous eosinophilic material coating the alveolar ducts, atriums, and alveoli. There are two main schools of thought regarding the origin of the hyaline membranes. The first advocates the theory that concentrated protein derived from inhaled amniotic fluid produces obstruction and leads to the production of atelectasis after the infant is born. The second contends that the protein is derived from the blood rather than from aspirated amniotic fluid. The latter theory is supported by the occurrence of pulmonary hyaline membranes in many diseases of older children and adults such as influenza and influenzal pneumonia, rheumatic disease, war gas poisoning, and radiation pneumonitis. In all of these diseases, damage to small vascular channels is considered to be the direct cause of the escape of the protein material. High oxygen concentrations with associated vascular and epithelial damage or hormonal imbalance with coincident increase in vessel permeability have been considered by some workers as important factors in the pathogenesis of this disease entity. Others tend to incriminate postnatal edema fluid as the source of the protein material. Prematurity and cesarean section are the only two factors that bear any close relationship to membrane development. It is suggested that resorption atelectasis in addition to hyaline membrane formation may represent a disease process that is quite different from that associated with the presence of hyaline membranes alone in the lungs of infants, older children, and adults.

Erythromycin in the Treatment of Diphtheria and Diphtheria Carrier State. M. W. Beach, W. B. Gamble Jr., C. H. Zemp Jr. and M. Q. Jenkins. Pediatrics 16:335-344 (Sept.) 1955 [Springfield, Ill.].

Erythromycin was given a therapeutic trial in 43 patients between the ages of 5 months and 17 years with untreated acute diphtheria who were admitted to the pediatric service of Roper Hospital (pediatric department of the Medical College of South Carolina). The preparation of erythromycin used was a suspension of erythromycin ethyl carbonate (Ilotycin), and it was administered in doses of from 25 to 50 mg. per kilogram of body weight, with an average dose of 40 mg. per kilogram daily, given at 4 to 6 hour intervals. The duration of treatment varied from 7 to 14 days with an average of 10 days. Thirty-eight patients were given antitoxin in doses ranging from 20,000 to 40,000 units intramuscularly. Five additional patients, who had positive throat cultures for Corynebacterium diphtheriae but showed no clinical evidence of disease and had negative results from the Schick test, were treated with erythromycin alone. Erythromycin eradicated the C. diphtheriae from the nose and throat of all 48 patients within an average of two days in those with active disease and three days in the carriers. The treatment of acute diphtheria has not been drastically changed by the use of antibiotics. Antitoxin remains the primary form of therapy. However, the eradication of virulent diphtheria bacilli from the upper respiratory tract of patients with the active disease and of carriers is of considerable importance in the control of the disease. Streptomycin is effective in vitro and in infections produced experimentally but it has not been clinically evaluated in acute diphtheria or in the carrier state. Chlortetracycline, chloramphenicol, and oxytetracycline, although active against the causative organisms, have not had sufficient clinical trial to permit evaluation in the control of acute diphtheria and the carrier state. Penicillin eradicated C. diphtheriae from the nasopharynx in 75% of patients within three to four days. The results obtained by the authors and other workers with erythromycin suggest that to date it is the most promising antibiotic in the treatment of diphtheria. Erythromycin is advocated as an adjunct to, not as a substitute for, *antitoxin in the treatment of acute diphtheria.*

Splenectomy in Mediterranean Anemia. D. H. Clement and M. Taffel. Pediatrics 16:353-362 (Sept.) 1955 [Springfield, Ill.].

Splenectomy for hereditary leptocytosis (Mediterranean anemia) was performed on three boys born of Italian-American parents and on a girl born of Greek-American parents, who had been anemic since early infancy. At the time of the operation the children's age varied from 2 to 11 years. The follow-up period after the splenectomy varied from one to 10½ years. The procedure was well tolerated by all patients. Complications did not occur, though thrombosis remains a threat in view of the high platelet counts that were observed postoperatively. Although the primary defect in hereditary leptocytosis is an inability to synthesize adequate amounts of hemoglobin, a hemolytic component eventually supervenes, associated with splenomegaly that in turn is augmented by the necessary transfusions. When the disease has been evident for some time, as it was in the authors' patients, the spleen is greatly enlarged and the transfusion requirement is big. Splenectomy was effective in greatly reducing the need for transfusions to 25 to 50% of the presplenectomy need. Secondary benefits after splenectomy included improvement in disposition, appetite, and activity and lessened fatigability. Overloading with iron was diminished, a feature theoretically desirable in view of the ever-present hemochromatosis. Psychic trauma to the child and expenditure of the physician's time in transfusions were proportionately decreased. Failure to benefit from splenectomy may be expected if the organ is removed early in the course of the disease before it has greatly enlarged and the transfusion need is great. It is also possible that the operation will accomplish little in the terminal phase of the disease when the liver is huge and the marrow overextended. Optimum time for splenectomy and the best criteria for the selection of patients remain to be determined, but the authors are convinced that removal of the spleen under appropriate circumstances is of substantial benefit to these patients. Early ambulation and even anticoagulant therapy (not yet employed by the authors) may be useful. Platelet counts should be followed closely.

Cortisone in Diagnosis and Treatment of Adrenogenital Syndrome in Children. H. Andersen. Ugesk. læger **117:**966-969 (July 28) 1955 (In Danish) [Copenhagen, Denmark].

Cortisone is at present considered the sovereign remedy in the treatment of hyperplasia of the adrenal cortex and is an important agent in differential diagnosis between tumor and hyperplasia of the adrenal cortex. Of the four cases described, two illustrate the typical effect of cortisone in girls with hyperplasia of the adrenal cortex, with normalization of growth and sexual development, and the third case shows the value of 17-ketosteroid determinations in the urine for early diagnosis. In these cases reduction in 17-ketosteroid excretion occurred, which is characteristic in hyperplasia of the adrenal cortex after administration of cortisone, in contrast to the fourth case, a patient with tumor of the adrenal cortex, in which administration of cortisone did not normalize the 17-ketosteroid excretion. This is an important though not infallible sign in the differential diagnosis between the two forms of the adrenogenital syndrome, which may clinically greatly resemble each other but require different treatment (the tumors requiring operation and the hyperplasia, treatment with cortisone). Cortisone given intramuscularly in the initial dose of from 25 to 100 mg. and in the daily maintenance dose of 25 mg. or less seems to bring the 17-ketosteroid values down. In many cases cortisone may be given orally in which cases the dosage is generally doubled. Intramuscular injections are advised for the start of treatment and in differential diagnosis. With proper dosage and control customary for cortisone treatment no undesirable effect appears to follow. Even after several years' treatment with cortisone, a rise in the 17-ketosteroid excretion in the urine is seen shortly after discontinuation of the treatment.

OTOLARYNGOLOGY

The Treatment of Purulent Otogenic Meningitis. S. Nakamura, D. Toyomura and N. Iida. A. M. A. Arch. Otolaryng. **62:**42-49 (July) 1955 [Chicago].

Complete exenteration of the primary focus of the infection in the temporal bone by a radical mastoidectomy and, if necessary, even a petrosectomy should be performed without hesitation in purulent otogenic meningitis, and after that chemotherapy should be instituted. The studies described were undertaken to determine the amount of penicillin necessary to maintain the optimal concentration in the cerebrospinal fluid without at the same time causing any serious side-reactions. Observations were made on seven patients with otogenic meningitis. In addition, experiments were made on 40 rabbits. With regard to the diffusion of penicillin into the cerebrospinal fluid in extrathecal application, intracarotid arterial injection is the best method, followed by intravertebral arterial injection, intravenous injection, and intramuscular injection, in that order. Intramuscular injection is generally not so effective as the other procedures described. The optimum single dosage of penicillin by intracarotid injection is of the order of 600 to 1,000 units per kilogram; it seems desirable to repeat this dosage two to three times a day. In intrathecal applications, the cisternal punctu is more effective than the lumbar puncture. In cisternal punctu an optimum daily dose of penicillin appears to be of the ord of 200 to 300 units per kilogram. Since the diffusion of penicill to the region of the base of the brain and spinal cord is greate for cisternal puncture than for any other procedure, cisterna puncture insures not only a higher penicillin concentration bu also a longer duration of significant concentrations. A new su plementary procedure for guarding against serious side-reactio resulting from intrathecal application of penicillin is suggeste It is based on the observation that the precipitation of fibrino substances is promoted by the addition of 3% acetic acid to t cerebrospinal fluid in vitro.

Rare Tuberculous Lesions Treated with Streptomycin. H. (penheim. A. M. A. Arch. Otolaryng. **62:**119-129 (Aug.) 19 [Chicago].

The occurrence of tuberculosis in rare locations is repor in four men. One of these patients had involvement of maxillary sinus; in the second patient the tuberculous lesion located on the upper lip; the third patient had two ulcers the upper lip with involvement of the tongue on the oppo side; and the lesion in the fourth patient was located on the b of the tongue. The diagnosis of tuberculosis was confirmed biopsy in all four patients. The lesions appeared secondary pulmonary tuberculosis. The first patient was given strep mycin alone in doses of 1 gm. intramuscularly daily; two of other patients received daily 1 gm. of streptomycin intramus larly and 12 gm. of aminosalicylic acid orally for 48 and 28 respectively. The fourth patient was given 1 gm. of streptom intramuscularly twice weekly and 12 gm. of aminosalicylic orally daily for five weeks. In the patient with involvemen the maxillary sinus, tubercle bacilli were absent in the spu for over eight months previous to the diagnosis of tubercu sinusitis. It appeared reasonable to ascribe the sudden reapp ance of tubercle bacilli in the sputum to drainage originatin the right maxillary antrum. From the time of the institutio therapy with streptomycin, all sputums remained consiste negative for acid-fast bacilli. It is believed that streptom was helpful in preventing or arresting a future spread of disease into the surrounding structures. The three patients tuberculosis involving the lip and tongue showed rapid hea of their tuberculous lesions on the lip and/or tongue wi five weeks. Their appetites and weights increased because pain on eating had disappeared. Two of these three patie remained healed after three and one-half years. The third observed for one and one-half years after therapy was start his lingual ulcer did not recur. In none of the patients were regional lymph nodes involved. Insufficient time has elapsed final evaluation of the permanence of results obtained w streptomycin, with or without aminosalicylic acid, in the f patients with rare tuberculous lesions, but it may safely be sta that these antibiotic drugs represent a simple, and, up to now, most effective, therapeutic weapon against oral tuberculosis. cept possibly in the field of tuberculous paranasal sinusitis, su cal intervention rarely becomes necessary.

THERAPEUTICS

Allergic Reactions to Sulfonamide and Antibiotic Drugs. F. Lowell. Ann. Int. Med. **43:**333-344 (Aug.) 1955 [Lancaster, P

Reports collected from the literature concerning the frequen and potential danger of allergic or possibly allergic reactions the sulfonamide compounds and antibiotic drugs warrant t following precautionary measures. Incidental and unnecessa exposure to the sulfonamide and antibiotic drugs should be h to a minimum. Drugs effective and relatively safe when giv parenterally should not be administered topically as ointme or nose drops. Other antibacterial agents that cannot be giv systemically are available for such purposes. Whenever p sible, measures permitting an accurate bacteriological diagno should be taken before treatment is started. Knowledge of infecting organism will help in recognizing the cause of syn toms that persist despite treatment. The number of drugs administered simultaneously should be held to a minimum. The initial injection of a drug should be given in an extremity rather than in the buttocks, so that measures can be taken to delay absorption if a reaction occurs. This is especially important in those who have had reactions in the past and those who are to receive penicillin. Preparations suitable for treating acute allergic reactions should be available. The inadvertent injection of a drug intravenously is undesirable and can be avoided by withdrawing the plunger of the syringe for a few seconds after the needle is inserted. If blood appears in the hub of the syringe, the needle should be reinserted. To those who have had allergic reactions to a drug in the past or who are believed to be prone to have reactions, short-acting rather than long-acting preparations should be given. Whenever possible, sulfonamides and antibiotics should be given orally.

Treatment of Blood Disorders with ACTH and Cortisone: Third Report to the Medical Research Council by the Panel on the Haematological Applications of ACTH and Cortisone. L. J. Witts, C. J. C. Britton, L. S. P. Davidson and others. Brit. M. J. 2:455-457 (Aug. 20) 1955 [London, England].

Of 14 men and 34 women, 22 of whom were over 55 years of age, with acquired hemolytic anemia, a partial or complete response to the administration of corticotropin (ACTH) or cortisone occurred in 39 (81%). Of the 28 treated most recently, a partial response occurred in 15 and a complete response in 8. Of the 15 patients, 5 received 300 mg. or more of cortisone daily for 11 to 30 days. Of the eight patients, three received 300 mg. of cortisone daily, and four others received 200 mg. daily; one patient received 75 mg. of corticotropin daily for 40 days. Eight other patients were given continuous treatment for at least six months, and their requirements of cortisone varied from 50 to 200 mg. a day. In all these patients, a relapse could be induced promptly by stopping cortisone therapy or reducing the dosage. Of 26 patients with idiopathic thrombocytopenic purpura (17 women, 3 men, and 6 children), complete responses to cortisone therapy were obtained in 12 and partial responses in 10. Four adults were therapeutic failures; in two of these the maximum daily dose of cortisone was only 100 mg., whereas in the entire group the maximum daily dosage was 200 to 300 mg. in more than half of the patients. Of four patients who were treated continuously with cortisone for six months or more, two remained well when given 100 mg. daily, but they relapsed when they were given 50 mg. daily; mild adrenal cortical hyperfunction (Cushing's syndrome) developed in both. The other two patients remained well when given 50 mg. and 75 mg. of cortisone daily. These results suggest that, in most patients with acquired hemolytic anemia and idiopathic thrombocytopenic purpura, remissions can be induced by the administration of corticotropin or cortisone. Adequate dosage is important. Remissions can often be maintained for long periods by continued administration of the hormones. Of 49 children and 52 adults with acute leukemia, the administration of corticotropin or cortisone induced temporary remissions in 34 children and 22 adults. This method of treatment thus compares favorably with others. Neverthless, few patients survived for more than one year. In other hematological conditions, such as aplastic anemia and refractory anemia, administration of corticotropin and cortisone rarely produced any favorable effects.

Oral Treatment of Pernicious Anemia with a Combined Vitamin B_{12} and Intrinsic Factor Preparation. E. K. Blackburn, H. Cohen and G. M. Wilson. Brit. M. J. 2:461-463 (Aug. 20) 1955 [London, England].

Biopar, a preparation containing in each tablet 6 mcg. of crystalline vitamin B_{12} and 30 mg. of "intrinsic factor" was given a therapeutic trial in 30 patients with pernicious anemia. Four of five previously untreated patients with uncomplicated pernicious anemia who were given five tablets of Biopar (30 mcg. of vitamin B_{12} and 150 mg. of intrinsic factor) daily showed a satisfactory response from both the clinical and the hematological points of view. In the fifth patient no response was obtained, and no satisfactory explanation was found for this failure. In 12 patients previously treated with vitamin B_{12} by injection at least for one year, who had shown steady blood levels in the course of this period and who were transferred to maintenance treatment by oral administration of one tablet of Biopar daily, the hemoglobin level and red blood cell count showed a significant drop when the treatment was continued for a year. In an additional patient on oral maintenance therapy with Biopar, features of subacute combined degeneration developed. In the remaining 12 patients who received maintenance therapy throughout with vitamin B_{12}, no definite trend could be detected. It is concluded that at present oral treatment with Biopar is not so reliable as that with vitamin B_{12} by injection.

Treatment of Hypertension with Drugs: Clinical Experiences with Serpasil, Serpasil-Ritalin, and Serpasil-Nepresol. A. F. Essellier, J. Goerre and A. Wegmann. Schweiz. med Wchnschr. **85**:808-811 (Aug. 20) 1955 (In German) [Basel, Switzerland].

Of 107 patients with essential and nephrogenic hypertension admitted to the Medical University Clinic of Zürich, Switzerland, 62 were treated with small doses of reserpine (Serpasil) alone, 15 with reserpine and phenyl-piperidyl-2-acetic acid methyl ester (Ritalin), a new central stimulant, and 30 with reserpine and 1,4-dihydrazinophthalazine (Nepresol). Of the 62 patients who were given reserpine alone, 58 had first been treated by bed rest and a salt-free diet to which they did not respond. They then received reserpine in small doses of 0.75 to 1.5 mg. per day. In only 6 of the 58 patients was the blood pressure restored to normal and it did not rise again after discharge from the hospital when treatment was continued ambulatorily; these patients had been followed for from several months to two years. Insignificant side-effects consisted of fatigue and diminished libido. The low dose of the drug did not cause any untoward reactions in most of the patients but proved insufficient for the treatment of patients with severe, fixed hypertension. Four patients with malignant hypertension associated with pressor crises were given larger doses of 5 to 40 mg. of reserpine daily; the blood pressure was lowered considerably but parkinsonism occurred as an undesirable side-effect of the treatment. A more promising technique of administration of reserpine is its combination in large doses with Ritalin and in small doses with Nepresol. Of the 15 patients treated with doses up to 5 mg. of reserpine and 10 mg. of Ritalin daily, the arterial pressure was restored to normal without undesirable side-effects in 5; the remaining 10 patients were resistant not only to the 5 mg. dose of reserpine but also to larger doses of the drug; and parkinsonism occurred in two patients who received a daily dose of 11 mg. of reserpine. These observations suggest that satisfactory lowering of blood pressure can be obtained only with higher doses of reserpine than those used currently and that combination with Ritalin makes it possible to use the effective dose of 5 mg. of reserpine daily without undesirable side-effects. The combined treatment of 30 patients with reserpine and Nepresol, both drugs employed in relatively small doses, i. e., 1 to 1.5 mg. of reserpine and 50 to 125 mg. of Nepresol, resulted in a significant drop of blood pressure in 11 patients, who were followed up for an average period of five weeks. Undesirable side-effects, particularly anginal pain, necessitated discontinuation of the treatment in three patients. Restoration of blood pressure to normal or significant and permanent lowering of blood pressure thus may be obtained by combined treatment with reserpine and Ritalin or Nepresol in about one-third of patients with hypertension refractory to bed rest and salt-free diet. Combined treatment with reserpine and Ritalin as compared with the combination with Nepresol has the advantage of less undesirable side-effects.

The Results of 2-Hydroxystilbamidine Therapy in Disseminated Coccidioidomycosis. I. Snapper, L. A. Baker, B. D. Edidin and D. S. Kushner. Ann. Int. Med. 43:271-286 (Aug.) 1955 [Lancaster, Pa.].

Six men between the ages of 22 and 41 and one nine-year-old boy with proved disseminated coccidioidomycosis were treated with 2-hydroxystilbamidine given intravenously in doses of from 150 to 225 mg.; the total dose of the drug varied from 8 to 23 gm. There was no evidence of a curative effect of the drug, but in five of the seven patients more or less marked suppression of the disease occurred and was manifested by progressive subsidence of complaints and frequently by weight gain and resumption of normal activities. In one of the adult patients a remarkable remission of a progressive coccidioidal meningitis coincided with high dosage therapy with 2-hydroxystilbamidine (total dose 23 gm.). When clinical improvement occurred, it usually appeared only two to six months after cessation of treatment. This may be understandable in terms of the depository character of the drug, which may permit prolonged action after cessation of treatment. In the five patients who appeared clinically improved, evidence of persistent low grade infection remained, and serologic improvement in the course of and after the treatment was dicouragingly small. Two patients died. Despite the high total dose of the drug no evidence of renal or hepatic toxic reactions attributable to the drug was noted. After receiving 10 to 14 gm. of 2-hydroxystilbamidine, patients complained of malaise, headache, and muscle aching, in addition to annoying nausea and vomiting, all of which subsided with rest periods and recurred with further treatment. Further use of 2-hydroxystilbamidine in the treatment of disseminated coccidioidomycosis, with long follow-up and in a larger number of patients, appears to be indicated before its place in the treatment of this disease can be properly evaluated.

RADIOLOGY

Laparoscopic Splenoportography. L. Wannagat. Klin. Wchnschr. 33:750-758 (Aug. 15) 1955 (In German) [Berlin, Germany].

Splenoportography under direct vision was carried out 42 times with the aid of the laparoscope in 40 patients with diseases secondary to hepatitis. Puncture with a needle 15 to 17 cm. long and 1.5 mm. in diameter was made below the left costal arch between the median and the anterior axillary lines. Under constant direct vision the needle was brought near to the surface of the spleen and then pushed forward 2.5 to 3 cm. deep into the parenchyma of the spleen; markings up to a depth of 5 cm. near the point of the needle provided information about the respective position of the needle in the spleen; 20 to 40 cc. of contrast medium were injected. For 12 splenoportograms, 70% Ioduron (morpholine salt of diiodized pyridone) was used as contrast medium; undesirable side-effects such as nausea and sweating occurred in three patients and vomiting occurred in one. Urografin (a mixture of methylglucamine salt and sodium salt of 3,5-diacetylamino-2, 4,6-triiodobenzoic acid) was used for 30 splenoportograms, and nausea occurred in one patient only. Six illustrative cases, two in patients with extrahepatic obstruction of outflow and four with intrahepatic narrowing of circulation are described. In contrast to the observations made by other workers, the author did not observe any reduction in the size of the spleen in the course of the injection of the contrast medium. He does not believe that the capacity of the spleen for contraction can be responsible for negative results obtained with splenoportography. The portal circulation time, however, is of practical importance. In patients with pronounced portal hypertension, most of whom have a fibrous tumor of the spleen that has lost its capacity for contraction, satisfactory splenoportograms may be obtained by slow injection of the contrast medium, while in patients with a slightly altered spleen and with little resistance of the liver rapid injection of the contrast medium is required in order to obtain sufficient density of the contrast medium in the portal vessels. The splenoportogram can be interpreted in the sense of abnormal changes when more or less pronounced anastomoses are shown between the areas of origin and flow of the portal vein and of the inferior vena cava and when the architectonics of the hepatic vessels are reduced or completely abolished in the individual segments of the liver. Extension and narrowing of the volume of the intrahepatic portal branches are to be considered also as abnormal. The picture of a dried-up tree, the branches of which point like fingers in the wind, is highly characteristic of cirrhosis of the liver. Reflux into the trunk of the inferior or superior mesenteric veins, winding or widening of the splenic vein, and venous reflux of the contrast medium from one hilus bifurcation to the other are signs that are as useful as the increased shadow of the spleen in the pneumosplenogram and a large shadow of the gall bladder. The author believes that splenoportography under direct vision will facilitate early detection of abnormal changes, such as slow anicteric virus hepatitis, initial processes of connective tissue tranformation in the liver, mechanical or inflammatory obstruction of the portal circulation, and fibrous tumor of the spleen.

Roentgen Diagnosis of Esophageal Varices: Comparison of Roentgen and Esophagoscopic Findings in 502 Cases. I. E. Kirsh, C. C. Blackwell and H. D. Bennett. Am. J. Roentgenol. 74:477-485 (Sept.) 1955 [Springfield, Ill.].

The esophagus was examined for varices in 502 patients with diseases of the liver and spleen by roentgen ray and by the esophagoscope. A standard procedure for roentgen examination was employed, using as contrast medium a suspension of 4 oz. (120 cc.) of barium sulfate in 8 oz. (240 cc.) of water, with 0.25% carboxymethylcellulose added. Because the esophageal walls retain their flexibility when varices are present, peristalsis may cause the varices to be ironed out at times. Consequently, a multiple film procedure is necessary. The early roentgenographic signs of esophageal varices are as follows: characteristic scalloping of the borders of the filled esophagus and rounded expansions in the mucosal folds of the lower esophagus, seen on relief study. Of the 502 patients examined, evidence of varices was shown by roentgen rays and by esophagoscopy in 66, and in 388 such evidence was not shown by either one of the two methods of examination. Thus in 454 patients (90%) the results of both methods of examination agreed, while there was disagreement in 48 patients. Of the 102 patients with positive findings on esophagoscopy, 66 had positive findings on roentgen ray examination. It appears that the clinically important cases of varices were, in the main, diagnosed roentgenographically, inasmuch as hemorrhage occurred in 31 of the 66 patients with positive findings by both methods but in only one patient with negative findings on roentgen ray and positive findings on esophagoscopy.

Studies on Nagasaki (Japan) Children Exposed in Utero to the Atomic Bomb: A Roentgenographic Survey of the Skeletal System. W. W. Sutow and E. West. Am. J. Roentgenol. 74:493-499 (Sept.) 1955 [Springfield, Ill.].

At the time of the atomic bomb explosions in Japan, women in various stages of pregnancy were exposed to radiation at short distances. Of 105 children exposed in utero to radiation from the atomic bomb explosion in Nagasaki and examined in 1952, 74 were exposed to radiation injuries at distances under 2,000 m. from the hypocenter; the remaining 91 were exposed at distances of 4,000 to 5,000 m. from the hypocenter, at which distance biological effects of atomic bomb radiation were considered to be negligible. The occurrence of the types of skeletal anomalies reported in experimentally irradiated mice and rats could not be demonstrated in children exposed at various stages of intrauterine existence to the biological effects of atomic bombing. There was no difference between exposed and control children in the incidence of the more common bone variations such as neural arch defects, abnormalities of the hand bones, rib abnormalities, and variations of lumbosacral vertebrae. The roentgenographic survey of the skeletal system, however, was conducted in 1951 and 1952 on children who were living six and seven years after exposure. It is quite possible that the more extreme degrees of abnormalities were present among the fetuses that were aborted or delivered dead and among infants that died in the early postnatal period. Data collected by other workers showed that four abortions, six stillbirths, six neonatal deaths, and three infant deaths occurred among the group of mothers exposed to radiation within the 2,000 m. area; in contrast, 2 abortions, one stillbirth, one neonatal death, and 3 infant deaths were reported among the control group. An effort was also made to determine whether or not the presence of radiation symptoms in the mother was associated with an increased incidence of skeletal abnormalities in the child. Although the numbers concerned were quite small, no correlation could be demonstrated.

BOOK REVIEWS

Scientific Writing. By Meta Riley Emberger and Marian Ross Hall. General editor: W. Earl Britton. Cloth. $4.50. Pp. 468, with illustrations. Harcourt, Brace and Company, Inc., 383 Madison Ave., New York 17, 1955.

Although modern communication among specialists has reached a new high in terminology and form, basic concepts and principles should form the ground plan for any article. This book is more than just a manual devoted to scientific writing; it is a storehouse of useful material for anyone who wishes to communicate his ideas in a logical, clear-cut manner. The authors, members of the English department at the University of Louisville, have more than a speaking acquaintance with science and its history. The book is admirably arranged for those who wish to do any scientific writing. Fundamental concepts are given in chapters 1 and 2. The next four chapters outline clearly the investigative project. Problems of composition fill the next three chapters. Various types of papers are discussed in chapters 9 through 13. The last two chapters treat the problems of graphic illustration. This book is complete in necessary detail and full of good advice. There is nothing pedantic about it. In fact, a great deal of wit and humor enliven the book. A feature not often seen is an appendix in which quotations from famous scientific writings illustrate most effectively the subject matter discussed in various chapters. The book not only is easily read but also has great charm and is a useful guide because it takes cognizance of most of the intricate, subtle, and shifting shades of meanings of current words, phrases, and expressions.

Collected Papers on Aviation Medicine. Presented at aeromedical panel meetings of Advisory Group for Aeronautical Research and Development, Palais de Chaillot, Paris. AGARDograph no. 6. Published for and on behalf of Advisory Group for Aeronautical Research and Development. North Atlantic Treaty Organization. Cloth. 37s.6d.; $5. Pp. 209, with illustrations. Butterworths Scientific Publications, 88 Kingsway, London, W.C.2, England; Interscience Publishers, Inc., 250 Fifth Ave., New York 1, 1955.

This volume includes papers collected over a period of three years. Four of the 18 papers are in French; the contributors represent Great Britain, the United States, France, the Netherlands, Italy, and Norway. The subjects include among others anoxia, latent epilepsy, arctic survival, the layout of cockpits, cabin pressure, cold injury, noise, abrupt deceleration, nocturnal vision, color vision, and heterophoria. The papers are highly technical and would not interest the general practitioner but should be of great interest to flight surgeons. A few of the papers include bibliographies. The text is clarified by the inclusion of well-chosen graphs, diagrams, and photographs. There is no index.

A Short History of Medicine. By Erwin H. Ackerknecht, M.D., Professor of History of Medicine, University of Wisconsin Medical School, Madison. Cloth. $4.50. Pp. 258, with 28 illustrations. Ronald Press Co., 15 E. 26th St., New York 10, 1955.

The author of this book was prompted by what he believed was a need for a shorter history of medicine than was currently available. It takes the reader from paleolithic times through the first half of the 20th century. It is written in popular style for the interested layman or beginning student. The author provides a list of supplemental reading in the appendix. He has tried to strike balances between history proper and its social and cultural background, medical science and medical practice, and clinical and preventive medicine. There are a few illustrations. The appendix includes a list of the winners of the Nobel prize in medicine and physiology, some of whom are not mentioned in the text. The index consists mainly of names of persons.

The Pathogenesis of Poliomyelitis. By Harold K. Faber, M.D., Director of Poliomyelitis Research, Department of Pediatrics, Stanford University School of Medicine, San Francisco. Publication number 257, American Lecture Series, monograph in American Lectures in Pediatrics. Edited by John A. Anderson, M.D., Professor and Head, Department of Pediatrics, School of Medicine, University of Minnesota, Minneapolis. Cloth. $5. Pp. 157, with 16 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, Canada, 1955.

This slender volume brings together the results of Dr. Faber's laboratory and clinical investigations of the pathogenesis of poliomyelitis that have been appearing in scientific journals over a period of many years. The book discusses its subject broadly enough to bring out the relationships of the epidemiology, symptoms, and immunology of the disease to its pathogenesis. The author's conclusions are in sharp contrast to the recently enunciated theories of pathogenesis of poliomyelitis that hold that the virus proliferates in and invades through the intestinal mucosa followed by a viremia and invasion of the central nervous system by way of the blood stream. Dr. Faber presents data indicating that the primary point of entry of virus is by the nerves of the oropharynx and perhaps the intestinal tract, following which the virus spreads to regional peripheral ganglia. He accepts the fact that viremia occurs but believes that his experimental data indicate that it is secondary to the invasion of neurons. He believes that the fact that it is difficult to induce poliomyelitis in monkeys by intravascular injections of large amounts of virus proves that viremia is of limited importance in the pathogenesis of poliomyelitis in that animal and, by implication, in the human being. He also argues that the symptoms in the so-called systemic phase reflect the consequences of invasion of nerves and consequent neural spread of the virus rather than the effects of infection of extraneural tissue. Whether one agrees with Dr. Faber's hypothesis or the probably more widely accepted theory of pathogenesis advocated by Bodian, Paul, and others, anyone interested in poliomyelitis should enjoy reading the book in order to see how skillfully Dr. Faber has collected experimental data and marshaled the arguments for his theory. Fortunately, there is nothing in either hypothesis that interposes theoretical barriers to acceptance of either active or passive immunization to poliomyelitis. Format, type, and illustrations are excellent and the bibliography large and well selected. The book is marred by several misspellings that appear to be due to inadequate proofreading.

Modern Trends in Blood Diseases. Edited by John F. Wilkinson, M.D., M.Sc., Ph.D., Consultant Physician, United Manchester Hospitals, Manchester, England. Cloth. $12. Pp. 359, with 93 illustrations. Paul B. Hoeber, Inc. (medical book department of Harper & Brothers), 49 E. 33rd St., New York 16, 1955.

The editor's aim is to present "a guide to the present trend of the more important clinical investigations and research" in hematology. To achieve this purpose a series of 15 monographs on various aspects of hematology is presented. The quality of these articles varies greatly. The studies on iron metabolism using radioiron by Moore and Dubach deserve special mention as an excellent review of important new subject matter in hematology. Unfortunately, many of the other monographs fall far below this high standard. Often an attempt to cover too much material in a short space results in a mere outline of the subject. In addition, opinions are stated as facts without any documentation. The choice of subjects is, on the whole, good, but there is no article on blood coagulation per se, merely one on anticoagulant therapy. It also seems questionable whether there has been sufficient progress in bone changes and blood diseases, dermatological aspects of blood diseases, and changes in the fundus in diseases of the blood to warrant inclusion of chapters on these at the expense of coverage of more pertinent hematological topics.

These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

The Casualty Department. By T. G. Lowden, M.A., B.M., B.Ch., Consultant Surgeon, Sunderland Royal Infirmary, Sutherland, England. Cloth. $7.50. Pp. 278, with 170 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2; E. & S. Livingstone, 16 and 17 Teviot Pl., Edinburgh 1, Scotland, 1955.

This volume describes the management of all of the common and some of the uncommon problems of a minor surgical nature that are seen in the casualty department of the Sunderland Royal Infirmary in England, a medium-sized nonteaching provincial hospital. It combines many of the better features of a textbook and a manual on minor surgery. The first five chapters are devoted to a description of the management of minor infections and the role played by antibiotics in their treatment. There is a chapter on the septic hand and a description of certain skin conditions and uncommon forms of sepsis. The next chapters describe the management of open and closed soft tissue injuries as well as the management of wounds with skin loss. The rest of the book includes discussions on burns and scalds, elective cases, anesthesia, and material relative to organization, the disposal of patients, and legal aspects of casualty or emergency room cases.

In the first chapter on the management of local infections, some of the policies described are different from those generally used. None would object to the policy of the administration of penicillin in infections prior to the formation of pus in order to abort the infection, but after abscesses have formed the author advises administration of penicillin to produce high blood penicillin levels and incision with removal of pus and slough and deliberate destruction of granulation tissue by abrasion with gauze or by curettage. The author then advises primary suture of the abscess provided the overlying skin is in good condition. He urges that the operation include a careful exploration and evacuation of all pus and dead tissue. As he puts it, the surgeon not only lets pus out, he gets it out. The author gives 600,000 units of procaine penicillin and 200,000 units of aqueous penicillin 45 to 60 minutes before operation. In the management of simple perianal and ischiorectal abscesses, if the surgeon can be sure there is no communication with the rectum, the author advises incision and eradication of the abscess by curettage, followed by primary suture after large preoperative doses of penicillin and a preoperative injection of a sulfonamide. He stresses obliteration of the wound cavity with elimination of dead space and keeping the wound clean and dry.

The book is attractively printed on paper of excellent quality and is easy to read. The illustrations are appropriate and interesting and have adequate legends. There are some attractive color plates in the chapter on the septic hand. The bibliography at the end of each chapter is short but appropriate. The principles set forth are based on extensive experience in the management of various types of injury. Some of the statements, especially those with respect to the curettage and primary suture of local infections of various types, including ischiorectal abscesses, are controversial. In general, however, the book should be valuable to anyone interested in the management of an emergency clinic.

Nutrition Sourcebook. Compiled by Oliver E. Byrd, Ed.D., M.D., F.A.P.H.A., Professor of Health Education, and Director, Department of Hygiene, School of Education, Stanford University, Stanford, Calif. Cloth. $7.50. Pp. 370. Stanford University Press, Stanford, Calif.; Oxford University Press, Amen House, Warwick Sq., London, E.C. 4, England, 1955.

This book presents a sampling of the currents of nutritional thinking and research in the period, 1945 to 1955. The book differs from ordinary textbooks or reference works in its method of presentation. Each chapter consists of a collection of abstracts of selected articles that have appeared in professional journals. At the beginning of each chapter, there is a summary set in different type of all the articles that are abstracted therein. Each abstract bears a brief title and is identified by a number, by which the complete reference to the original article can be located in the separate bibliography. The book contains adequate author and subject indexes. The arrangement facilitates the location of all material in the volume, the format is excellent, and the pages present none of the cut-up appearance of an abstract journal or catalog. The individual abstracts have been written with care and with obvious regard for the reader. The subjects covered embrace nutrition in its broadest sense, from the chapter on the six basic elements of the human diet to those on nutrition in medicine and nutrition as an international problem. There are chapters on foods and emotional health, food allergies, and nutrition during pregnancy and infancy, each of which is of special clinical interest. The viewpoint governing the selection of topics, however, is primarily that of the worker in the field of public health. The selection of articles from the professional literature has been conducted with discernment. The author annually publishes a health yearbook, in previous issues of which some of the abstracts of the present volume have appeared. The book should be most useful to workers in public health, and for all readers it should afford a stimulating insight into the possibilities of the applications of nutritional knowledge to the practical problems of individual patients and to the welfare of communities and nations.

Clinical Toxicology. By Clinton H. Thienes, M.D., Ph.D., Director, Institute of Medical Research, Collis P. and Howard Huntington Memorial Hospital, Pasadena, Calif., and Thomas J. Haley, Ph.D., Chief, Division of Pharmacology and Toxicology, Atomic Energy Project, Los Angeles. Third edition. Cloth. $6.50. Pp. 457, with 16 illustrations. Lea & Febiger, 600 Washington Sq., Philadelphia 6, 1955.

This third edition brings up to date, in the form of brief digests, knowledge of the clinical toxicology of common chemicals in general use. It is intended as a guide for medical students and general practitioners, and nonclinical aspects are minimized or omitted. A pharmacological rather than a chemical classification is used in the presentation of material. This is in keeping with the type of audience to which this book is directed. The major categories covered include convulsant poisons, central nervous system depressants, peripherally acting nerve poisons, muscle poisons, protoplasmic poisons, and poisons of the blood and hematopoietic organs. Principles of treatment and an outline of symptom diagnosis are presented for the orientation of the practitioner. A section on chemical identification of specific poisons is included. The appendix describes the special reagents mentioned in the sections on chemical tests. While this book can be recommended for the purpose for which it is intended, it is noticeably lacking in discussions of certain types of chemicals that may cause injury and that toxicology textbooks frequently omit. Among the compounds so ignored are surface active agents (detergents), petroleum distillates (such as naphtha, mineral spirits, and methylene chloride), sodium hypochlorite (household bleach), warfarin (rodenticide), and various cosmetic products. With the growing awareness among physicians of the problem of accidental poisoning, it will be necessary to include recommendations for these compounds, if a toxicology textbook is to fulfill its mission.

Dextran: Its Properties and Use in Medicine. By John R. Squire, M.D., M.D., F.R.C.P., Leith Professor of Experimental Pathology, University of Birmingham, Birmingham, England; J. P. Bull, M.D., Director, Medical Research Council Industrial Injuries and Burns Research Unit, Birmingham Accident Hospital, University of Birmingham; W. d'A. Maycock, M.D.; and C. R. Ricketts, Ph.D., F.R.I.C. Cloth. Pp. 91, with 7 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 24-25 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto, 2B, Canada, 1955.

This monograph on dextran includes an introductory chapter on plasma substitutes in general. The chemistry, behavior, and effect of dextran in the body, specifications for suitable preparations, and clinical and experimental uses of dextran are discussed in turn. Differences between "native" and "clinical" dextrans are explained, and specifications of the latter are outlined respectively for British and American preparations. British spelling is used throughout the text. In addition to various tables and figures to tabulate or illustrate technical data, two appendixes and a list of references appear at the end. One appendix outlines certain tests for the purity of dextran, and the other summarizes the clinical laboratory findings in patients given dextran. No index is provided, but the table of contents, listing chapter titles and subdivisions, should make the information readily accessible. All physicians and allied scientific workers having special interest in plasma substitutes should find this monograph a composite source of useful information on dextran.

Adolescent Development. By Elizabeth B. Hurlock, Ph.D., Associate in Psychology, Graduate School, University of Pennsylvania, Philadelphia. McGraw-Hill Series in Psychology, Clifford T. Morgan, consulting editor. Second edition. Cloth. $6. Pp. 590, with 49 illustrations. McGraw-Hill Book Company, Inc., 330 W. 42nd St., New York 36; 95 Farringdon St., London, E.C.4, England, 1955.

This revision of the first edition, intended as a textbook, presents a general picture of adolescence, with discussion of the impact of social, emotional, sexual, and other physical problems on the individual in the conduct of his daily life. Although the volume includes a large bibliography and a list of audio-visual aids, the body of the text emphasizes much recent research material of a general character, especially that "relating to the effects of physical changes on attitudes and behavior, social acceptability, the influence of social class as a determinant of behavior, juvenile delinquency, and new trends in courtship behavior." The chapter dealing with family relationships should be of exceptional interest to parents who are confronted with the problems of adolescence within their own home. Indeed, the style of presentation throughout the book is interesting and readable. This gives the volume real value as a reference text for those not trained in the psychology of the adolescent, but who desire authoritative information and help in the solution of their problems. It would seem that a text of this type should include more reference to the physiological requirements of adolescent nutrition, at least in the bibliographic references. The author is well qualified in this field of writing as evidenced by publication of texts on child development and developmental psychology. The publisher has done a good job in the format, with attractive physical arrangement of material and use of legible type. Here is an opportunity for one to obtain, in fine perspective, good practical reading material about the problems of adolescence.

Communicable Diseases. By Franklin H. Top, M.D., M.P.H., F.A.C.P., Professor and Head, Department of Hygiene and Preventive Medicine, State University of Iowa, Iowa City, and collaborators. Third edition. Cloth. $18.50. Pp. 1208, with 124 illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1955.

During the 14 years that have elapsed since the first edition, this book has firmly established itself as the leading textbook dealing with the clinical aspects of communicable diseases. The third edition maintains the previous high standards and leaves no doubt as to the authoritative position it occupies in current medical literature. The book has almost doubled in size and scope due to inclusion of more diseases and more comprehensive discussion and the addition of several chapters of general interest. Notable among the last are chapters dealing with the sulfonamides and the antibiotics. As in earlier editions, liberal use has been made of contributions from collaborating authors. Although these comprise about half the volume, the senior author has provided a continuity and cohesiveness that is often lacking in a book to which so many specialists have contributed. Many illustrations have been added. While major attention and emphasis have been placed on diagnosis and treatment, proper attention has been given to the etiological and epidemiological aspects of each disease, but only rather brief consideration to prevention. The bibliographies are well chosen and unusually complete. This volume can be recommended for all medical libraries and to all physicians whose practice includes the care of patients with infectious diseases.

Selection of Anesthesia: The Physiological and Pharmacological Basis. By John Adriana, M.D., Director, Department of Anesthesiology, Charity Hospital, New Orleans. Cloth. $6.50. Pp. 327, with 35 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 24-25 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, Canada, 1955.

This excellent book fills a real gap, because no other book gives brief but adequate information to the busy surgeon, who often prescribes the type of anesthesia without regard for the individual requirements of the patient. Part 1 deals with pharmacology and the clinical application of each drug in current use. The author wastes no time on rare and unusual drugs but confines his discussion to the material found in the average operating room. In this section, he writes like a pharmacologist well versed in his subject and accustomed to teaching students. In part 2 he discusses the various diseases that complicate the surgical picture and that should be considered when prescribing an anesthetic. The physiological disturbances caused by anesthesia and their influence on complicating diseases are well described. This section should be of great benefit to the surgeon. The title of the book suggests the last section, which presents a logical method of choosing an anesthetic with relation to the operation to be performed. Each surgical condition is discussed, and a suitable anesthetic procedure is proposed. This information should be very useful to students of anesthesia, young surgeons, and consultants who are called on to advise management of postoperative complications. The last chapter deals with anesthesia for obstetric patients. This should be read by all obstetricians. It emphasizes need for better preparation of the patient for the application of anesthesia. This is not a book on the technique of anesthesia. It should be helpful to the student or physician interested in the pharmacology of drugs in common use in anesthesia but is not comprehensive enough to supplant a textbook of pharmacology. It is authoritative and advises sound anesthetic practices. It supplies scientific information in place of the prejudices both for and against ether, cyclopropane, and such techniques as intubation. This book is the voice of anesthesiology begging to be heard by the surgeon.

School Health Sourcebook. Compiled by Oliver E. Byrd, Ed.D., M.D., F.A.P.H.A., Professor of Health Education, School of Education, Stanford University, Stanford. Cloth. $7.50. Pp. 373. Stanford University Press, Stanford, Calif.; Oxford University Press, Amen House, Warwick Sq., London, E.C.4, England, 1955.

This book follows the pattern of Byrd's health education yearbooks, since it is made of abstracts of the important recent literature. It consists of 400 items taken from school health literature of the past 10 years. Abstracts are from a paragraph to a page in length and are classified into 20 chapters for easy reference. This book should be useful to physicians and educators actively engaged in school health work as a ready reference on currently accepted policies and practices. It should also help those interested but not actively engaged in school health activities to obtain authoritative information on school health problems that they may encounter. Each chapter is prefaced by a page or two of concise discussion outlining prevalent attitudes on the subject of the discussion. These in turn are expanded in the abstracts that follow. Each abstract is numbered and titled and contains the name of the original author and the date of the writing. In the appendix, detailed bibliographic references corresponding to the numbers of the abstracts are given. Authorities to be quoted have been carefully selected, so that on controversial points both sides of the question are presented. Likewise, the findings of most of the national commissions and committees that have considered problems in the fields of school health are presented in original form.

Systemic Associations and Treatment of Skin Diseases. By Kurt Wiener, M.D., Dermatologist, Mount Sinai Hospital, Milwaukee. Cloth. $17. Pp. 556, with 90 illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1955.

This book, dealing with the systemic phenomena associated with skin diseases, is a logical sequel to a previous volume by the same author in which he described the skin changes that accompany internal or systemic diseases. The books overlap to some degree when the skin and systemic manifestations are of equal significance, as in the deep mycoses and in leprosy. On the other hand, the systemic relationship of certain skin diseases such as lupus erythematosus, dermatomyositis, and scleroderma are thoroughly clarified and reviewed in the present volume to compensate for inadequate coverage in the previous book. The author also describes therapeutic measures for these diseases in great detail, including not only the nontopical drugs, but also selected diets, indirect radiation therapy, and balneologic methods, especially the use of spas. The book is well written, and, in general, the format is good. The illustrations are not numerous but are well chosen and adequate. The bibliography and general index are thorough. Students, internists, and dermatologists should find the book a convenient synopsis of current knowledge in this field.

QUERIES AND MINOR NOTES

SURGERY ON SYPHILITIC PATIENTS

To THE EDITOR:—*In a patient with no evidence and no history of a primary lesion, but with a positive serologic test (irrespective of the titer), can surgery be safely done without the patient going through any prior treatment from the patient's standpoint and from the standpoint of the operating personnel? Is it thought that wound healing and ancillary surgical problems are increased if the patient has a positive serologic test? Should treatment aid in wound healing and ancillary surgical problems? Should any special precaution be taken by the operating room personnel in preparation of instruments that have been used on a case of this sort? Should several pairs of gloves be worn to prevent sticking one's fingers or accidental cutting of the skin? Should this patient be isolated? If treatment is recommended, what is the definite type of drug used, and what criteria must one use to decide when surgical treatment may be proceeded with?*

Don D. Dieter, M.D., Salina, Kan.

This inquiry was referred to two consultants whose respective replies follow.—ED.

ANSWER.—Given a patient with a positive serologic test found on routine examination and assuming there is no history of a primary lesion, the question of titer and degree of positivity is important. If the titer is high and the serum strongly positive, treatment consisting of 600,000 units of penicillin daily for 12 to 16 doses should be given prior to the operation if the surgical procedure is elective. In the case of a surgical emergency, the operation should be done and the course of penicillin started the same day. If the serologic test is only partially positive and the titer is low, further studies should be made to determine if there is a false-positive reaction. Any patient with a positive serologic test in whom studies confirm probability of syphilitic infection, and who has not been previously treated, should receive the routine treatment outlined above. Wound healing should be improved by treatment of the syphilitic patient. Routine sterilization of surgical instruments is adequate. No special precautions are necessary. The wearing of multiple gloves would not be practical or necessary. Isolation of the patient is not necessary, inasmuch as penicillin treatment has been or is being given.

ANSWER.—There are numerous complete discussions of the handling of surgical operation in patients with syphilis. The most complete of these is the section on surgery and syphilis in Lewis and Walters (Practice of Surgery, vol. 12, Hagerstown, Md., W. F. Prior Company). Specifically, the risk to the operator (from accidental wounds) depends entirely on the duration of infection in the patient. If the patient has become recently infected (within weeks or months) the operating team is at some risk from accidental wounds unless the patient has been given two or three preliminary doses of penicillin; and there may be a slight risk in patients whose infection is less than four years' duration. In longer-standing infections there is no risk to the surgeon or his assistant. In patients with recent infections who must be operated on in emergency fashion an intramuscular injection of 1 to 2 million units of aqueous penicillin G should be given as soon as the operation is decided on and treatment continued after operation with repository penicillin, 600,000 units daily or every other day to a total of 6 million units. If the operation is elective and can be delayed two or three days, repository penicillin may be used before as well as after treatment. In patients with long-standing syphilitic infections, no preliminary treatment is necessary for protection of the surgeon. If through carelessness the surgeon or any member of the operative team is accidentally cut or stabbed with a needle during an operation on a previously untreated patient with infectious syphilis, the surgeon so injured should adopt penicillin prophylaxis for himself in the form of 600,000 units of repository penicillin daily or every other day for four doses given as promptly as possible after the injury. The wearing of several pairs of gloves would seem to be an unnecessary precaution. From the standpoint of the patient, syphilis has no effect on wound healing, unless in the circumstance that the surgeon inadvertently operates on a gummatous lesion, particularly in or around the nasopharynx without preoperative or postoperative treatment of the patient. Antisyphilitic treatment is not essential to aid in wound healing under any ordinary circumstances. No special precaution with regard to the preparation of instruments other than the usual cleaning and sterilization is necessary before or after operation on a syphilitic patient. Isolation of syphilitic patients is never necessary to prevent infection of others, provided those engaged in the care of the patient can avoid intimate contact with the patient's mouth and genital organs (if he has early syphilis) before the administration of any treatment. Moreover, only patients with early syphilis of less than two to three years' duration are infectious even from mouth or genital contact. A single injection of an adequate dose of penicillin will destroy surface organisms within 12 hours. One should, of course, avoid the ridiculous situation, which has been observed, of emotional contacts with the patient such as kissing. The treatment of syphilitic patients who must undergo surgery does not differ from the treatment of syphilis in general. Penicillin is the drug of choice, and the literature is full of articles on dosage, duration of treatment, and methods of administration. Perhaps the most important points are: a positive serologic test has nothing to do with infectiousness, the titer of the serologic test likewise has nothing to do with infectiousness and nothing to do with the gravity of the disease in the patient, in patients with late syphilis the serologic test for syphilis may remain positive for the balance of the patient's life regardless of treatment, and a positive serologic test for syphilis is not a contraindication to surgical operation.

STATUS OF PNEUMOTHORAX IN TUBERCULOSIS

To THE EDITOR:—*Please advise the present status of pneumothorax in the treatment of pulmonary tuberculosis.*

M.D., Arkansas.

ANSWER.—Specifically, pneumothorax therapy has not been replaced by surgery—not entirely—even in the most advanced medical circles, and only partially even in places where surgical facilities are limited or lacking. The method is going the way of the mastoid operation and, to a lesser extent, the crucial incision for carbuncles. But let no one cast a disparaging word against pneumothorax, which has served mankind well and saved thousands from an early grave. It will still do it, but due to progress, there are better ways of obtaining the same and better results in much less time with much less risk. In this country, the procedure has been entirely abandoned in most up-to-date institutions. Some have not used it for several years. There are a few who still use it in selected cases. Nobody will use it where there is not a free pleural space. The risk of fluid and air embolism and the risk of pneumonolysis or adhesion cutting is out of all proportion to the advantage gained. Besides there is usually a better method—i. e., drugs and/or surgery. The surgery may involve adhesion cutting or stripping but not for the purpose of continuing the pneumothorax. If there is a free pleural space however, if there is a medium-sized cavity in the center of the lobe, and if there is at least half of a lobe made up of functioning tissue, then the one remaining valid indication for pneumothorax presents itself. If drugs are

---

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

available they should be used with the pneumothorax. In the above-mentioned type of case, the pneumothorax expedites the closure and healing of the cavity by bringing the walls into closer approximation. On the other hand, the drugs assist greatly in doing what the pneumothorax used to do in a longer time. In the event that the lobe or lung has very little good tissue left, the surest, quickest, and—by every standard—the best method is resection where, with proper selection, timing, and good care, the patient may be sent home well in all but a small percentage of cases within 6 to 10 months time instead of the former two to four years time in addition to a long home convalescence of sometimes years. If there is only a small cavity in any other segment, or if there are caseous masses in any of the segments, a segmental resection may be performed or even a wedge resection in certain cases after proper coverage by drugs. In fact pneumothorax would make such an operation more difficult. Although infiltrative lesions may respond to pneumothorax treatment after long intervals of time, as a general rule most caseous masses remain as such for years and offer threats for the future that need not be risked today since resection will usually remove such lesions once and for all when the selection, timing, technique, and care are proper. The last sentence is significant for there are today many incompletely trained surgeons who go out into the world and attempt to perform surgery without a proper understanding of the disease tuberculosis. This is true in certain countries where properly trained men and facilities are lacking for acceptable work. As to other parts of the world, there is a greater difference in the use of pneumothorax than there is here. In some places it is still used with little change from the preantimicrobic era. Others are yielding to the advances of the times almost as much as in this country. Generally, due to lack of funds and facilities the changes vary in different places, and all are considerably behind the pattern set in this country.

NUMBNESS OF HANDS AT NIGHT

To the Editor:—*A heavily muscled man in his 30's, a plumber, complains of numbness of both hands and forearms that develops every night after he has been asleep. When he wakes up he has to shake his arms to get them back to normal feeling. Both arms are affected equally every night. He sleeps either prone or flat on his back—seldom on one side or the other. He does not wear any nightclothes that bind under his arms. There is no evidence of anemia, nor any foci of infection. He uses no tobacco and takes only an occasional glass of beer. He has had some symptoms of hyperthyroidism in the past, without any demonstrable goiter. I have given him propylthiouracil on several occasions with benefit.*

Lewis I. Younger, M.D., Winona, Minn.

Answer.—The symptoms mentioned, namely numbness of the hands and forearms that appear during the night when sleeping, on first thought would be a scalenus anticus syndrome. Complaint of the above is not unusual. The background of this syndrome may be attributed to various sources, such as a cervical rib and enlarged transverse process of the cervical spine, or it may be due to hypertrophy of the scalenus anticus muscle. An x-ray of the neck is recommended, with the above possibilities kept in mind. If the x-ray does not reveal findings, then an injection of 1 cc. of procaine solution into the belly of the muscle for possible relief is advised, and if this gives relief, it may indicate that the muscle is the source of the trouble. Another possible source of trouble as mentioned could be an enlarged thyroid, since propylthiouracil, given on several occasions, relieved the situation temporarily. It may be advisable to make a complete study of thyroid function, a basal metabolic rate, radioactive iodine uptake, and protein-bound iodine. It is assumed that complete studies of the spine have been made, and any possible pathological source excluded. Another possible source is the nervous system. Occasionally, patients, who have these symptoms coming on at night, in which no definite cause has been found, have used the vague diagnosis of idiopathic nocturnal paresthesia. As for management, a complete search for a possible scalenus anticus syndrome is recommended. If positive, then the source should be eradicated, if possible. These patients are advised to sleep with the shoulders slightly turned in, so as to relax the shoulder girdle. These cases usually have a varying degree of arteriospasm. To combat this, priscoline, 25 mg. given three or four times a day, and papaverine hydrochloride, given four times a day, may be given orally. Fractional doses of the barbiturates are likewise given. If the condition has proved to be one of the above, and there is marked arteriospasm, it can be evaluated by skin surface temperature studies. A series of treatments with mecholyl, every other day for 10 treatments, has been helpful. If the condition is enlarged thyroid, then continue with propylthiouracil and the therapy outlined above. If it is due to some neurological condition, then treatments to overcome arteriospasm with barbiturates would be indicated.

HEADACHE FOLLOWING CONTACT WITH NITROGLYCERIN

To the Editor:—*An industrial concern has been using nitroglycerin in their experimental laboratory. Several employees who come in most direct contact with the nitroglycerin at times develop severe headache, nausea, and vomiting. We feel that adequate precautions are being taken to prevent direct contact and inhalation of fumes, but such contacts cannot always be avoided. Are there any precautions or medication that can be taken by employees to prevent the development of such symptoms?* *M.D., Minnesota.*

Answer.—The threshold limit of harm from nitroglycerin is so low (0.5 ppm) that it is often difficult to secure this degree of protection in the absence of completely enclosed chemical systems. While the query mentions "adequate precautions" have been instituted, it may be desirable to make a series of exact determinations of the atmospheric level within the experimental laboratory. Only a small percentage of exposed workers are susceptible to low level action of nitroglycerin that is absorbed readily through the skin or may be inhaled or ingested. Most workers develop a tolerance for this chemical after three or four days of exposure. However, this tolerance is quickly lost even over a two-day weekend. This rapid gain and loss of tolerance may represent that pathological state tachyphylaxis ("rapid immunization"). Cautiously, it is here stated that this tolerance may be perpetuated by harboring about the person trace quantities of nitroglycerin under conditions that prevent contact with the skin. It is a tradition among "powder men" that they insert behind their outside hat bands a pellet or two of giant powder, although this prophylactic measure unpleasantly may involve other members of the household. Tablets of amphetamine sulfate, 15 mg., or of ephedrine hydrochloride, 0.5 grain (0.03 gm.), have been utilized as prophylactics against nitroglycerin headaches, but both are useless after the headache has been inaugurated. These two chemicals themselves are not unequivocally without harmful properties. Alcohol consumption is well contraindicated, particularly in the presence of a nitroglycerin headache. Alcohol may precipitate a severe state of confusion and delirium, the so-called nitroglycerin encephalosis.

TREATMENT OF VITILIGO

To the Editor:—*Please advise concerning the use of Oxsoralen for the treatment of vitiligo. What precautions are necessary and are the results lasting as well as satisfactory?*

Olin L. Lepard, M.D., Sturgis, Mich.

Answer.—Oxsoralen or 8-methoxypsoralen is a purified derivative of several plants, such as Ammi majus linn. Crude extracts from these plants have been used for centuries in Egypt and India. There are two forms of this preparation in use—a capsule, containing 10 mg. of 8-methoxypsoralen, and a 1% lotion for topical application. These can be used individually or in combination. This method of treatment is still under investigation. In vitiliginous individuals it can cause a repigmentation. As the partial loss of pigment seems to cause such a tragic impact on the emotional mechanism of the individual, this drug should be tried in all adaptable cases. The indication is for the idiopathic type of vitiligo. The combined method is much more successful than either of the single methods. Moderate to severe nephritis, hepatic insufficiency, and diabetes mellitis are contraindications. Cases with gastritis or colitis should be carefully treated. Treatment should begin with one-half the usual dosage. In applying the topical lotion the first two or three applications should be diluted one-half with 70% alcohol. Sunlight or carbon arc light is essential for the oral, topical, or combined methods. Ultraviolet lamps have not been effective. The time of exposure to sunlight should be guarded carefully with not more than 30 seconds for the first exposure and increased each time by 15 second increments. Acute redness, edema, vesiculation, or bullous formation will occur with too much light. Nausea, vomiting, increased sweating, weakness and hematuria, focal redness, itching, or edema is a signal to stop oral medication. Treatment should be resumed with one-half the dosage. The results are satisfactory in 30 to 40% of the cases treated orally, 50 to 60% of the topically treated cases, and 80 to 95% of those treated with the combined method. As to permanency, the treated areas have remained pigmented for more than three years, but in a large percentage of those under observation new patches have occurred in those under treatment as well as those who had completed their treatment. These observations are based on more than 200 cases treated with both the American and Egyptian drugs.

HEPATITIS

To the Editor:—*Is there definite evidence that a hepatitis might be produced by transmission of the virus through a syringe that has been boiled rather than autoclaved?*

M.D., Florida.

Answer.—There would seem to be evidence that hepatitis might be produced by transmission of the virus through a syringe that has been boiled rather than autoclaved, if the needle has not been properly cleaned and/or if the boiling has not lasted for at least 10 minutes. According to the report of the World Health Organization's Expert Committee on Hepatitis (W. H. O. Technical Report Series number 62, Geneva, Switzerland, March, 1953, p. 22). "Syringes, needles or other instruments must be thoroughly washed in water immediately after use to prevent organic material coagulating or drying on the surfaces of the instruments and interfering with the effect of subsequent sterilization. The following methods of sterilization are acceptable: boiling in water for at least 10 minutes, steam under raised pressure (autoclave), and dry-heat sterilization (hot-air oven). If the temperature can be properly controlled in all parts of the hot-air oven, treatment at 170 C [348 F] for half an hour is adequate, otherwise treatment at 180 C [356 F], for one hour is recommended. Lancets and other instruments used for capillary-blood sampling and scarification may be sterilized in an open flame after washing in cold water."

RECURRING RHEUMATIC FEVER

To the Editor:—*I should like to know whether the recurrence of acute rheumatic fever in an individual on prophylactic penicillin treatment has been shown to be due to a resistant beta-hemolytic Streptococcus and also the present prophylactic regimen for one who has acute hemorrhagic glomerulonephritis. What is the prognosis of this disease related to the age of onset?* *M.D., Illinois.*

Answer.—No conclusive evidence exists that beta-hemolytic streptococci develop resistance to penicillin. Earlier reports of penicillin-resistant strains of beta-hemolytic streptococci were later identified as group D Lancefield enterococci. In patients whose rheumatic fever has been inactive for more than two months, and who have received adequate prophylactic doses of penicillin, recurrence is always due to new streptococcal infection. Continuous prophylaxis with adequate doses of antibiotics decreases the relapse rate by 90%. Since there is a close relation between streptococcal infection and acute glomerulonephritis, all active foci should be removed as soon as the active disease has subsided. There is no convincing evidence that antibiotics influence favorably the course of acute glomerulonephritis; however, it is recommended that penicillin or other antibiotics should be administered in the presence of active streptococcal infection. In children, the prognosis of acute glomerulonephritis is good; in adults it is less favorable. The disease may last from a few days to a year, the average being about two months. The coexistence between acute rheumatic fever and acute glomerulonephritis is infrequent. It has been reported that hemolytic streptococci of group A, type 12, were identified in patients with classic glomerulonephritis, but absent in other types of nephritis. It is therefore strongly suggestive that type 12 streptococci may be the pathogenic agent causing acute glomerulonephritis.

TUBAL STERILIZATION

To the Editor:—*A woman had her third child by cesarean section and had an Irving ligation. This has upset her. She regrets having it done and wonders if there has ever been any successful plastic surgery performed that would allow her to become pregnant again.* *M.D., Canada.*

Answer.—The method of tubal sterilization described by Frederick C. Irving (*Am. J. Obst. & Gynec.* **60**:1101 [Nov.] 1950) does not seem to have achieved as wide popularity as the Madlener and Pomeroy techniques, although in the above-cited paper the author reported 814 operations without a failure. Since he believed that the chief cause of failure in the two more popular techniques lies in the formation of a false ostium in the proximal portion of the tube, Irving's method emphasizes deep burial of the latter in the myometrium. This point is mentioned because any effort to reestablish tubal patency would have to be based on anastomosis of the ligated distal portion and the endometrium. Although the consultant knows of no reports of such cases after Irving sterilization, the prospects for success would seem to be little better than for tubouterine anastomosis in general, even if polyethylene tubes are used. In the case of a woman who has already had three children, there is little doubt that most gynecologists would advise against such a procedure for this patient.

DIGITALIZATION

To the Editor:—*In* The Journal, *July 16, page 999, was a question about how patients receiving digitoxin should be maintained in an area where frequent follow-up visits are not possible. In this instance, two to three months might pass between visits. The answer indicated that "after digitalization and observation for several weeks it should be possible to determine the daily maintenance dose that will secure maximum benefit . . . without producing toxic effects." The answer is correct. However, of the digitalis preparations available, digitoxin, which was named in the question, is retained in the body for the longest period of time. Accumulation of this drug without supervision could favor insidious development of digitalis intoxication. It might, therefore, be advisable to give patients whose visits to the physician are infrequent another of the purified glycosides, such as digoxin or gitalin, which are excreted from the body more rapidly than digitoxin. If the maintenance dose of one of these preparations should have to be increased because of more rapid excretion, and this need not be anticipated, the inevitable symptoms of increasing congestive heart failure would bring the patient back to the doctor's office. Since the problem here seems to be one of avoiding or controlling digitalis intoxication, these patients should be instructed to take daily supplements of potassium-rich food like orange juice. The use of potassium salts should not be necessary.*

Much recent study indicates that the onset of digitalis intoxication is related to depletion of potassium, whether due to vomiting, poor intake, or loss during diuresis. This concept is at variance with that implied in the answer, that with weight loss concentration of digitalis would develop "which may produce toxic symptoms." Toxic symptoms may develop with weight loss and depletion of potassium stores, but there is no good evidence for concentration of digitalis in this situation.

Herbert Mark, M.D.
1 Bryant Crescent
White Plains, N. Y.

THE JOURNAL

of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 159, NO. 11 CHICAGO, ILLINOIS NOVEMBER 12, 1955

COPYRIGHT, 1955, BY AMERICAN MEDICAL ASSOCIATION

DIAGNOSTIC FEATURES OF PANCREATIC DISEASE

J. Edward Berk, M.D., D.Sc., Detroit

Acute inflammatory lesions of the pancreas commonly are misdiagnosed, and chronic pancreatic disorders frequently are unrecognized until late in their course of development. One factor contributing to this situation is a lack of sufficient awareness of the pancreas and its disorders. Another factor is a widespread impression that diagnostic approaches to the pancreas are sharply limited. This presentation is intended to indicate that the clinical, laboratory, and roentgenologic expressions of pancreatic disease are surprisingly many. It is hoped that a review such as this will serve to stimulate interest in the gland and the diseases affecting it. It is further hoped that with increased awareness of the pancreas and wider use of the diagnostic approaches, pancreatic diseases will be recognized oftener and earlier.

CLINICAL FEATURES

Pain.—Pain sensation is transmitted bilaterally from the pancreas along visceral afferent fibers accompanying the splanchnic nerves on both sides.[1] In addition, pain may be conducted along somatic afferent pathways because most of the anterior surface of the pancreas is covered by parietal peritoneum. The distribution of pain arising from the pancreas depends largely on the portion of the gland affected. This has been clearly demonstrated by Bliss and his associates.[2] These workers inserted electrodes into various portions of the pancreas in a group of patients undergoing elective biliary tract surgery. They observed that when the head of the pancreas was electrically stimulated, the pain that resulted was distributed over the right epigastrium; stimulation of the body of the pancreas produced pain in the midepigastric region; stimulation of the tail gave rise to pain in the left lower epigastric region and sometimes in the left lower quadrant. When all parts of the gland were stimulated simultaneously, band-like pain was felt across the epigastrium with radiation to the back. Factors other than the site of involvement also determine the pain patterns of pancreatic disease. No typical pattern can be defined, but certain features are characteristic.[3] The intensity of pain varies with the extent and degree of inflammatory or neoplastic change in and about the pancreas. Pain may be excruciating in cases of acute pancreatic necrosis; while it is not as intense in cases of lesser severity, it is apt not to respond promptly to ordinary therapeutic doses of opiates. In chronic pancreatitis and in cancer of the pancreas, pain is usually mild to moderate in severity but there may be episodes of pronounced severity. Pancreatic pain is variably described by patients but is generally constant and often said to be a boring type of pain. Posterior radiation of the pain and exacerbation at night, or at other times when the patient is supine, are highly characteristic. Flexion of the trunk often provides some degree of relief. Patients whose pain arises from the pancreas, especially those with cancer, typically seek relief by sitting up, bending forward, or walking about with their trunks flexed and their hand pressed against the epigastrium.

Jaundice.—Jaundice occurring in patients with pancreatic disorders is usually considered a result of secondary obstruction of the major extrahepatic ductal system because of edema, inflammation, compression or infiltration, and fixation. The possibility of coexistent primary biliary tract disease also deserves to be given thought, particularly when jaundice is a feature of acute pancreatitis. Another mechanism to be considered is intrahepatic obstruction resulting from pericholangitis. That this may occasionally occur in man is suggested by the appearance of hyperbilirubinemia in some dogs with experimentally induced acute pancreatitis; the extrahepatic bile ducts of these dogs were found to be patent, but their livers showed pronounced pericholangitis.[4] Jaundice is one of the outstanding features of cancer of the pancreas, especially when the head of the pancreas is involved. Indeed, jaundice appearing in the absence of pain is a classical expression of cancer of the pancreas. It is still insufficiently appreciated, however, that pain in patients with cancer of the pancreas occurs with a frequency even exceeding that of jaundice.[3c] Jaundice without pain, therefore, while diagnostically important when present, does not occur in most patients with cancer of the pancreas.

Weight Loss.—Patients with chronic affections of the pancreas that are attended by wide destruction of pan-

---

From the Division of Medicine, Sinai Hospital of Detroit, and the Department of Medicine, Wayne University College of Medicine.

Read before the Eighth Clinical Meeting of the American Medical Association, Miami, Fla., Dec. 1, 1954.

Because of space limitations, the bibliographic references have been omitted from THE JOURNAL and will appear in the author's reprints.

creatic tissue or obstruction of the pancreatic ducts commonly lose considerable body weight. Not only is the degree of weight loss uncommonly great but the rapidity with which the loss takes place is impressive. The latter is true particularly in cancer of the pancreas.[3c]

Emotional Derangements.—Behavior disturbances and personality derangements may be detected surprisingly often in patients with pancreatic disease of various types.[5] The most striking emotional alterations, however, occur in those with cancer.[5a] The symptoms seen in patients with cancer consist principally of anxiety and depression, with insomnia, crying spells, and conviction of imminent physical danger. At times such disturbances in behavior may be among the earliest manifestations of the disease. It seems warranted, therefore, to suspect the possibility of cancer of the pancreas in any patient with unexplained abdominal pain who also displays emotional disturbances featuring anxiety or depression. Far too often, abdominal pain in a person with nervous symptoms such as these tends to be regarded merely as an expression of an underlying psychosomatic disturbance; only when jaundice makes a belated appearance, is its significance fully appreciated.

Multiple Venous Thromboses.—Multiple venous thromboses occur much more often in cases of carcinoma of the body and tail of the pancreas than in cases of carcinoma of other organs.[6] Carcinoma of the pancreas, particularly when restricted to the body and tail, may also be associated with a migratory thrombophlebitis. The latter is distinguished by its persistence, by the great number of veins involved, and by the tendency toward recrudescence in previously involved segments.[7] It is to be emphasized, therefore, that diagnosis of carcinoma of the body or tail of the pancreas should be considered whenever multiple venous thromboses or migratory thrombophlebitis are encountered in an older person, for either of which no other satisfactory causes can be found.

Gallbladder Distention and Pancreatic Mass.—Palpable distention of the gallbladder is one of the traditional physical features of cancer of the pancreas. A distended gallbladder may be felt by clinical examination in about half the patients with cancer of the pancreas attended by jaundice.[8] At operation or at autopsy, however, the percentage of cases of distended gallbladders is even greater. This indicates that, in conformity with Courvoisier's law, detection of an enlarged, nontender gallbladder in a patient with obstructive jaundice may be regarded as evidence favoring neoplastic obstruction of the extrahepatic bile ducts. Failure to detect a distended gallbladder on physical examination, on the other hand, does not exclude this diagnosis. Anesthesia may be used intravenously in doubtful cases to relax the abdominal wall and facilitate examination.[9] The deep, retroperitoneal location of the pancreas handicaps ordinary physical examination, but anesthesia induced intravenously may here again allow the examiner to detect a mass not otherwise palpable.[9] When a mass is detectable in the region of the epigastrium, the fact that it is movable does not exclude the pancreas as the site of origin. The pancreas, and tumors or cysts that arise from it, may exhibit some degree of mobility.[10]

LABORATORY FEATURES

Impaired Carbohydrate Metabolism.—Phenomena characteristic of the diabetic state are often associated with inflammatory and destructive lesions of the pancreas. Transitory glycosuria and hyperglycemia are frequently seen in patients with acute pancreatitis.[11] With abatement of the acute process, glycosuria disappears and blood sugar values usually return to normal. In some cases, however, destruction is so great that permanent diabetes mellitus results.[12] Glycosuria and hyperglycemia may also be found during acute exacerbations of chronic relapsing pancreatitis.[12b] In the intervals between acute attacks, latent diabetes may be demonstrated in some of these patients by an abnormal glucose tolerance test. Overt and permanent diabetes mellitus is not infrequent in advanced stages of the disease, particularly when there is roentgenologically visible calcification of the pancreas. Impaired glucose tolerance with a diabetic type of response has progressively emerged as probably the most valuable single sign pointing to the pancreas in cases of carcinoma of the pancreas.[13] Glycosuria and hyperglycemia may also be displayed, but the over-all frequency of these alterations appears to be less than that of an impaired glucose tolerance test.[14] Diabetes mellitus in some cases antedates the development of cancer of the pancreas.[3c] Indeed, cancer of the pancreas appears not only to be more prevalent among patients with diabetes [15] but in at least two series of patients with diabetes [16] it was the outstanding form of cancer. These considerations make it clear that development of abdominal pain in a diabetic patient or, conversely, the appearance of a diabetic phenomena in a patient with abdominal pain should lead one strongly to suspect the possibility of pancreatic disease.

Serum Pancreatic Enzymes.—The most widely used and probably the most valuable single means for the recognition of acute pancreatitis is determination of serum amylase.[17] Serum amylase usually attains its greatest value within 24 hours of onset of acute pancreatitis. The duration of elevation varies, depending principally on the severity of the process; in cases of acute pancreatic edema the amylase level usually returns to normal within two to three days. Serum lipase generally reaches its greatest concentration after the amylase value is elevated, but it tends to remain elevated for longer periods. Because of this difference in response, and because the behavior of these enzymes is not always regular, both determinations should be made. The level of serum amylase at a given time in a given patient is governed by a number of factors. As pointed out earlier, normal values may be obtained if the initial determination is made 48 hours or more after the onset of acute pancreatic edema. Occasionally, values below the upper limit of normal may be obtained even in the presence of clinically severe acute necrosis of the pancreas because of extensive destruction of acinar cells. Injection of opiates for relief of pain may result in elevation of both serum amylase and serum lipase for 24 hours, and occasionally for as long as 48 hours.[18] It is well, therefore, to inquire about administration of opiates within the preceding 24 hours when hyperenzymemia is found in a patient with abdominal pain.

Renal impairment interferes with excretion of amylase. Defective clearance by the kidneys may be responsible for prolonged elevation of amylase in the blood in some cases of acute pancreatitis.[19] Similarly, abnormal serum pancreatic enzyme values may occur in cases of uremia, independent of any pancreatic disease.[20] Other disorders from which primary acute pancreatitis must at times be distinguished may be accompanied by high serum amylase or lipase values without obvious involvement of the pancreas.[20] Such conditions include anterior perforation of duodenal ulcer, intestinal obstruction, and peritonitis. Hyperenzymemia may also occur in hepatic disease.[21] The latter occurrence is of practical importance because of the handicap it places on differential diagnosis when jaundice is also present. Confusion in these several circumstances may be partly avoided if the elevation in serum amylase is great. Values of serum amylase in excess of five times the top normal value indicate primary pancreatitis with rare exceptions.[22] Refinements in the technique used to determine serum enzyme activity may further resolve some of the confusion. Utilization of different substrates, for example, may distinguish the lipolytic activity of pancreatic lipase in human serum from the activity of esterases.[23] Hyperlipasemia [24] and hyperamylasemia [25] may be found in patients with cancer of the pancreas, the former oftener than the latter.[26] Certain limiting factors must be also considered in these cases in interpreting the significance of the serum pancreatic enzyme levels. Chief among these factors are (1) the degree of obstruction of the larger pancreatic ducts, (2) the extent of destruction of acinar tissue, and (3) the stage of the disease at the time the determinations are made. Sizable lesions may exist in the tail, and to a lesser degree in the body of the pancreas, without sufficient obstruction of the larger pancreatic ducts to cause increased diffusion of pancreatic enzymes into the blood. Serum values may be increased early in the disease but may fall in the advanced stages of the disease as more and more enzyme-producing acinar cells become destroyed.[27] Intermittency in values may also be observed; serum enzyme levels may increase at times when a larger duct is occluded and then subside as the acinar cells distal to the point of obstruction cease to function.

The administration of pancreatic secretory stimulants may provoke a rise in serum enzyme values significantly above the fasting or prestimulation levels. Secretin, methacholine (Mecholyl) chloride, bethanechol (Urecholine) chloride, and neostigmine (Prostigmin) methylsulfate have all been used for this purpose. They may be given alone or in various combinations; morphine sulfate may be given in addition to one or more of these stimulants to increase duodenal and sphincteric tone. Provocative elevation of serum enzymes has been observed in some cases of subsiding acute pancreatitis, chronic pancreatitis, and cancer of the pancreas.[28] This method of testing for pancreatic disease has definite limitations, however, that detract from its usefulness.[29] Some observers [29b] have failed to note a consistent difference in the results in control subjects and in patients with pancreatic disease. It is contended that the results do not correlate with the state of pancreatic function as revealed by other means.[29c] Provocative elevation of serum enzymes does not occur regularly in patients with chronic pancreatitis or carcinoma of the pancreas when secretin alone is used as the stimulant,[30] nor can the results be used to differentiate chronic pancreatitis and cancer of the pancreas. Despite these shortcomings, provocative elevation of serum enzymes should arouse suspicion of pancreatic disease. Elevations so produced may supply a clue as to the nature of an earlier-occurring episode of abdominal pain. Furthermore, provocative increase of enzymes in the serum of a patient suspected of having chronic pancreatitis or cancer of the pancreas would lend some support to the clinical suspicion.

Peritoneal Fluid Amylase.—Analysis of peritoneal fluid for amylase content provides another approach to the identification of acute pancreatitis.[31] Material for such analysis may be obtained by aspirating a small amount of fluid from the peritoneal cavity through a 20 gauge needle inserted through the midline of the abdomen just below the umbilicus. Peritoneal fluid amylase values have been reported to remain elevated for from two to four days longer than those of the blood.[31] Values in excess of 300 Somogyi units strongly suggest the presence of acute pancreatitis [32] but should not be considered pathognomonic of this disease; anteriorly perforated duodenal ulcer with escape into the peritoneal cavity of duodenal contents containing pancreatic juices may also result in elevated peritoneal fluid amylase values.[33] Additional examination of the peritoneal fluid for bile and total hydrochloric acid may help to distinguish these conditions.[32]

Urinary Diastase.—Determination of the diastase content of urine provides an easy means of detecting pancreatic disorder, especially with the use of newer and more simplified tests.[34] Opinion varies widely, however, about the value and reliability of such determinations.[19] For the most part, the use of this determination has been limited. Danker and Heifetz [19] point out that urine diastasic activity normally may vary greatly in random specimens of urine. They feel it is wiser, therefore, to express the values as units per hour. They point out, too, that, whereas increased urinary diastase may appear within minutes after blood diastase rises, impaired renal function during acute pancreatitis may delay this appearance. These factors may well explain the variability commonly observed.

Serum Calcium Level.—The serum calcium level tends to be lower when pancreas is acutely inflamed, particularly when the process is severe and attended by fat necrosis. Several mechanisms contribute to the production of hypocalcemia in acute pancreatitis.[35] Probably the most important one is transfer of calcium from the serum to the pancreas and other areas where fat necrosis may have occurred. The calcium drawn to these areas combines with the fatty acids liberated by the hydrolysis of fats to form soaps. The degree of lowering of serum calcium may be used, therefore, as one measure of the severity of the disease. Fall of serum calcium to levels below 7.5 mg. per 100 cc. is a serious omen.[36] Determination of serum calcium also affords information of diagnostic value. Lowered values of serum calcium may become evident at variable intervals after onset of the disease. The lowering, however, does not appear usually until the second to the fifth day and may persist for two weeks or even longer.[37] When a patient is not seen until a few days after the onset of an acute episode featuring abdominal pain, at which time serum enzyme values may be nonrevealing, the finding of hypocalcemia may serve to identify the process as that of acute pancreatitis.

Serum Alkaline Phosphatase.—Alkaline phosphatase has been shown to be present in the pancreatic juice of man,[35] dog,[39] and rabbit.[38] The enzyme has also been demonstrated by histochemical methods to be present in the intralobular ducts and centroacinar cells of pancreatic tissue of the same species.[38] Elevation of serum alkaline phosphatase has been reported in dogs after pancreatic duct ligation [40] and pancreatitis induced by pancreatic duct ligation and injection of bile from the gallbladder into the ligated duct.[37d] Despite these observations, little attention has been paid to serum alkaline phosphatase as an indicator of pancreatic disease in man.[13b] The investigations of Shay and his co-workers [39d] into the behavior of this enzyme in the blood of dogs with experimentally induced acute pancreatic disease was prompted by a chance observation of persistent hyperphosphatasemia in a patient with acute pancreatitis. Sun,[28f] working in the same laboratory, has noted a significant rise in serum alkaline phosphatase after secretin stimulation in some patients with cancer of the pancreas or chronic pancreatitis. It would seem advisable, therefore, to include this determination among those to be made in evaluating patients suspected of having pancreatic disease. Similarly, elevation of serum alkaline phosphatase in the absence of hyperbilirubinemia should direct attention, among other things, to the possibility of disease of the pancreas.

Alteration in Blood Coagulability.—Relationship between pancreatic disease and alterations in the blood-clotting mechanism has long been suspected.[41] Trypsin has been observed to promote the coagulation of blood.[42] Evidence has also been advanced indicating that trypsin activates a latent lytic substance in the blood.[43] Moreover, hemorrhagic states attributed to excessive proteolytic activity have been noted in patients with cancer of the pancreas.[44] Depending then on the concentration of trypsin in the blood and the net result of the lytic effect of this enzyme on the protein moieties concerned with clotting of blood, coagulation may be increased or decreased. There are no known tests by which level of trypsin in the blood can be reliably measured. In all likelihood, however, the trypsin content of the blood increases and decreases in a fashion parallel to that of the other pancreatic enzymes when pancreatic disease exists. It is possible, however, that the damaged pancreas elaborates some factor other than trypsin that is responsible for the fibrinolytic and thrombinolytic effects observed.[44b]

The antithrombin test is one approach to the diagnosis of pancreatic disease based on alteration in the factors responsible for coagulation of blood.[41] This test purports to measure the antithrombin titer of the blood by determining the clotting time of defibrinated plasma to which standardized thrombin and fibrinogen aliquots are added. Increased plasma antithrombin titers have been observed in cases of acute pancreatitis, in acute exacerbations of chronic relapsing pancreatitis, in cancer of the pancreas with jaundice of less than four weeks' duration, in pancreatic cyst, and in fibrocystic disease in infants.[45] Lowered plasma antithrombin titers have been noted in cases of cancer of the pancreas with jaundice of more than 4 months' duration, in cancer of the pancreas with hepatic metastasis, and in cystic fibrosis of the pancreas with duct obstruction and acinar atrophy.[45] Innerfield and his co-workers [45c] have reported that the plasma antithrombin titer remains elevated throughout the acute phase of pancreatitis. They feel that this is an advantage, since diagnostic plasma antithrombin values may be obtained at stages of acute pancreatitis when serum pancreatic enzyme levels may no longer be increased. Innerfield [45e] has also reported that antithrombin titers may be provocatively increased in cases of chronic relapsing pancreatitis during periods of remission. For this test, a specimen of blood is taken and 1 cc. of 1:2,000 solution of neostigmine is then given subcutaneously; another sample of blood is withdrawn one hour after injection, and the plasma antithrombin titer of this sample is compared with that of the specimen taken immediately before administration of neostigmine. Other observers have confirmed the diagnostic value of antithrombin titer determinations in acute pancreatitis [46] and fibrocystic disease of the pancreas.[47] Not all workers, however, have been successful in the use of this test.[48]

Another approach to the diagnosis of pancreatic disease through detection of an alteration in the coagulability of the blood is the so-called sodium polyanhydromannuronic acid sulfate (Paritol-C) test. This test is founded on three basic premises: 1. Secretory stimulation of a pancreas that is chronically diseased or invaded by carcinoma may result in an increase of blood trypsin. 2. Small increases of trypsin promote the coagulation of blood. 3. Heparin and heparin-like substances such as Paritol-C block the coagulant action of trypsin. A positive result is interpreted as one in which clotting occurs after pancreatic stimulation in tubes containing greater concentrations of polyanhydromannuronic acid than those in which a clot forms before stimulation. Shingleton and others [49] obtained positive results with this test in 6 of 11 patients with cancer of the pancreas and in 6 of 8 patients with chronic pancreatitis. Moser and his associates [50] have recently confirmed these findings.

Stool Changes.—The amount of external pancreatic secretion entering the intestine tends to diminish when the pancreas is diseased. Pancreatic juice may be excluded because of obstruction of the larger pancreatic ducts, and/or insufficient juice may be formed because of destruction of acinar tissue. As pancreatic juice diminishes in quantity and content, digestion of foodstuffs becomes more and more dependent on other enzymes normally present in the stomach and intestine. The capacity for these enzymes to digest fat and protein, particularly the former, is limited. Careful examination of the stools, therefore, may reveal evidence of defective digestion indicative of pancreatic insufficiency. When pancreatic function is significantly impaired and the digestive capacity of the nonpancreatic enzymes is exceeded, the stools become bulky, more numerous, and light-colored.

The mean weight of the dried feces excreted in 24 hours with the patient on a standard Schmidt diet does not normally exceed 18 gm.; in cases in which pancreatic juice has been largely excluded from the intestine, the weight of the dried stools may be increased to five times or more the average normal amount.[51]

Steatorrhea may be recognized grossly by the light, clay color of the feces, by the presence of butter or cream-like masses on or in the stool,[52] and by a thick, greasy consistency when the stool is smeared. Microscopic examination may reveal droplets or flakes of fat or needle-like crystals.[52] Contrary to previously held opinion, the majority of the fat present will not be of the neutral variety, despite deficiency in pancreatic lipase; apparently, bacteria or other ferments present in the intestine are able to split fat to form fatty acids. An indication of the percentage of fat present in the stool may be obtained through the simple expedient of staining a fecal emulsion with an alcoholic solution of Sudan III. According to Andersen,[53] a negative finding (less than two red or orange-appearing fat droplets per low-power field) and a 4+ finding (half or more of the visible material stained with Sudan) are significant. Accurate determination of the total fat in the feces and of the percentage of fat intake lost in the stool requires a controlled diet of known fat content, collection of stools for a three day period while on this diet, and quantitative analysis of the feces for fat. These pose practical difficulties, which have discouraged general acceptance and use of such analyses. Excretion of fat in the feces in normal persons is usually less than 5% of the fat intake and rarely more than 12 gm. of fat daily.[54] When pancreatic digestion is defective, considerably greater amounts of fat appear in the stool and the percentage of intake excreted in the feces is significantly in excess of normal.

Creatorrhea is perhaps even more indicative of pancreatic insufficiency than is steatorrhea. Impaired protein digestion resulting from pancreatic disease may be recognized by the presence in the feces of a large number of yellow muscle fibers with square ends, sharp edges, and well-preserved striations.[55] A more reliable indicator of pancreatogenous creatorrhea is quantitative measurement of the daily nitrogen excretion in the feces. Daily excretion of more than 3 gm. of nitrogen in the feces may be taken as good evidence of pancreatic disease.[56]

Analysis of the feces may also be used to identify pancreatic insufficiency by estimating the ferment activity of the stool. One such measurement is intended to assay trypsin activity by measuring the proteolytic effect of a fecal emulsion on gelatin. X-ray film is used as the substrate.[57] Impaired digestion of the x-ray film is interpreted to indicate subnormal content of trypsin. Gelatinases, however, may be produced by bacteria present in normal feces and give rise to false results.[57] Johnstone's [57] studies on tests for trypsin in feces indicate that falsely positive tests due to bacterial gelatinases may be reduced by diluting the fecal suspension. The addition of soybean trypsin inhibitor may also serve to distinguish liquefaction due to trypsin from that due to bacterial gelatinase.

Tests for Digestive Efficiency.—The functional capacity of the pancreas may be challenged by giving the patient a test meal requiring pancreatic juice for its digestion. The uptake of the resultant digestive products in the blood, or the amount lost in the feces, is then determined and pancreatic efficiency assayed on the basis of these findings. A gelatin tolerance test was among the first of such procedures to be used. In this test, blood amino acid-nitrogen values are determined before, and at intervals up to four hours after, the ingestion of gelatin. Flat or low blood amino acid-nitrogen curves have been observed in children with cystic fibrosis of the pancreas.[58] Althausen and Uyeyama,[59] however, after using the test in a group of 28 adults with suspected or confirmed pancreatic disease of various types, did not consider it to be a reliable test of pancreatic function in adults. The normality or abnormality of the results depends on the efficiency of intestinal absorption as well as on the degree of protein digestion. This makes it necessary to perform an additional tolerance test using aminoacetic acid in order to rule out impaired intestinal absorption of amino acids when the amino acid-nitrogen curves are low after gelatin.[60] The degrees of protein digestion and absorption may also be measured by giving a test meal of protein labeled with radioactive iodine (I^{131}).[61] Diminished intestinal hydrolysis of protein accompanying deficiency of external pancreatic secretion is evidenced by increased excretion in the feces and decreased excretion in the urine of the administered isotope.

Althausen and Uyeyama [59] have recently devised a starch tolerance test. Blood sugar determinations are made before, and at intervals up to three hours after, the patient has ingested a suspension of starch in water. Since patients with pancreatic disease often have reduced tolerance for glucose, it is necessary also to perform a glucose tolerance test. The extent to which the maximal rise in blood sugar value after administration of glucose exceeds that after administration of starch is calculated in percentages and compared with the established normal range. The outcome of the test was definitely abnormal in 87% of a group of 23 patients with chronic pancreatic disease of different types and in 60% of 10 patients suspected of having chronic pancreatitis.

Examination of Duodenal Contents.—A more direct way of detecting deficient pancreatic secretion, regardless of cause, is by examining the duodenal contents in the fasting state and after pancreatic stimulation.[62] Evidence of pancreatic impairment may be obtained by this method of study before the impairment has progressed to the point of producing changes in the stools.[62d] A double-lumened tube or 2 separate tubes are passed into the stomach and distal part of the duodenum. The contents of the stomach and duodenum are then separately recovered by constant suction. Material is collected for 20 minutes in the fasting state and for from 40 [63] to 80 minutes [62e] after administration of secretin, methacholine, bethanechol, or a combination of secretin and one of the parasympathomimetic drugs. Volume, concentration of bicarbonate, total bicarbonate, and concentration and total output of amylase, lipase, and trypsin are measured in the recovered duodenal contents. As with othe tests designed to evaluate pancreatic function by assa the external secretion of the gland, the secret

hibit
ion.
er,
de.

indicates only that function is intact or impaired; it provides no clue as to the cause for the impairment.

In early stages of pancreatic insufficiency, diminution in enzyme secretion may be the only abnormality.[64] Some investigators feel, however, that if secretin alone is used as the stimulant, determinations of volume and bicarbonate furnish most information regarding the state of external secretion of the pancreas.[65] They believe that enzyme determinations may be omitted without seriously detracting from the value of the secretin test. Since enzyme determinations are tedious and complex, their omission does much to simplify the procedure and make it more adaptable for ordinary clinical use. Secretin given intravenously provokes an outpouring of pancreatic juice into the duodenum. It also stimulates formation of bile,[66] which normally will be stored in the gallbladder. The immediate net result of both of these effects is a diminution in concentration of bile in the duodenal contents. Later, when the flow of pancreatic juice diminishes and the distended gallbladder contracts, bile concentration in the duodenum rises until the situation that existed prior to stimulation is once again restored. Measurement of the icterus index of the duodenal contents, therefore, results in a curve that may provide additional diagnostic information.[67] If the gallbladder has been removed or its storage capacity impaired, the icterus index curve is higher and more sustained than normal. If biliary obstruction is present, the curve is low and flat. The latter finding is especially useful in puzzling cases of jaundice, for it may help to distinguish between a lesion interfering with bile flow alone and one that also affects the pancreatic ducts or the pancreas itself. If, for example, the icterus index curve is flat but the volume, bicarbonate, and enzyme content of the duodenal aspirate are within normal limits, it may be concluded that the obstructing lesion is probably not of pancreatic origin.

Examination of the duodenal contents may provide additional valuable information. Calcium bilirubinate pigment and cholesterol crystals may be evident on microscopic inspection. The finding of these elements points to the existence, alone or concomitantly, of gallstones. Cytological study of the duodenal aspirate is still another diagnostic approach that may provide a clue as to the nature of the underlying lesion. In 16 patients with cancer of the liver, gallbladder, ampullary region, or pancreas, Lemon and Byrnes [68] correctly suspected or diagnosed the disease in 11, on the basis of cytological study of the duodenal aspirations. They and others [69] feel that cytological examination of the sediments of duodenal aspirations is a valuable means of identifying tumors affecting the glandular epithelium of the gallbladder, extrahepatic bile ducts, and pancreas.

ROENTGEN FEATURES

Survey Film of the Chest and Abdomen.—Basal pneumonitis, pleurisy, or even pleural effusion, usually on the left side, may accompany acute pancreatitis.[70] Signs indicative of these changes may be apparent on physical examination, or a roentgenogram of the chest may provide the chief evidence for their existence. Unless one is alert to other features pointing to the pancreas, the secondary supradiaphragmatic change may be mistakenly interpreted as the primary lesion. A plain film of the abdomen often discloses an isolated, gas-filled, "sentinal loop" of small intestine in the middle or upper part of the abdomen of patients with acute pancreatitis.[71] In severe cases, a more diffuse paralytic-type of ileus may be present. Radiopaque gallstones or calcification in the region of the pancreas may also be revealed.

Barium Study of the Gastrointestinal Tract.—Primary pancreatic disorders commonly produce changes in adjacent segments of the gastrointestinal tract through peripancreatic inflammation, cicatrization, pressure, or invasion. The stomach, the pyloroduodenal area, the duodenum, and the transverse colon are most often affected. Which of these areas is altered, and the nature of the alteration, depend on the type of lesion, its size and duration, and its anatomic location in the pancreas. Gastric and duodenal alterations may be observed in patients with acute pancreatitis who are examined soon after acute symptoms have abated.[72] The stomach may be displaced anteriorly, or its silhouette may be altered. The duodenal loop may be widened, the gastric and duodenal mucosa may appear shaggy and edematous, or motility in these segments may be changed. Irregularities in outline and distortion of the mucosal pattern of the stomach or duodenum may be seen in patients with chronic pancreatitis. Cysts of the pancreas characteristically displace the stomach or transverse colon, produce extrinsic pressure defects in the stomach and colon, or widen the duodenal loop.[73] Cancers of the pancreas commonly produce roentgen changes in the mucosal pattern of the pyloroduodenal segment and duodenum [74]; filling defects, depression and widening of the duodenojejunal angle, infiltrative changes, and even ulceration may occur, but widening of the duodenal loop is uncommon.[75] Changes in duodenal motor activity are frequent.[74] Dilatation of the common bile duct causes a pencil-like pressure defect in the immediate postbulbar region and less frequently in the bulb itself.[76] Pressure by the tumor may produce a circumscribed filling defect in the gastric silhouette or the duodenal bulb ("pad" sign).[73b] Tumors in the head of the pancreas may protrude into the inner aspect of the duodenal sweep, immediately above and below the papilla of Vater, producing thereby an appearance described by Frostberg [77] as an inverted "3."

It cannot be overemphasized that barium study of the gastrointestinal tract is one of the most helpful procedures in the study of patients suspected of pancreatic disease. This applies particularly to carcinoma of the pancreas.[78] The importance of careful application and interpretation of this procedure in patients suspected of cancer of the pancreas is illustrated by the experience of Broadbent and Kerman.[78b] Adequate roentgenologic study of the gastrointestinal tract was made in 76 patients with primary carcinoma of the pancreas. When these studies were originally interpreted, carcinoma was definitely suggested in 18% and abnormal changes without a definite diagnosis were noted in an additional 43%. Retrospective review of the same studies led to a definite suggestion of carcinoma in 54% and description of abnormal changes with no definite diagnosis in 25%.

Cholangiography.—Roentgen opacification of the common bile duct may show dilatation of the duct and interference with emptying of the opaque medium into the duodenum. It may also reveal narrowing of the terminal segment of the duct suggestive of compression or infiltration by a pancreatic lesion. Shehadi[79] succeeded in visualizing a dilated common bile duct by ordinary oral cholecystography in a nonicteric patient with cancer of the head of the pancreas. Such demonstrations may perhaps occur more readily with the use of the newer intravenously administered contrast mediums.[80] Peritoneoscopic cholangiography[81] may be used to opacify the common bile duct in the jaundiced patient in whom neither orally nor intravenously given mediums are effective. This is a procedure whereby contrast material is injected directly into the gallbladder under peritoneoscopic guidance, the ducts becoming opacified secondarily.

Splenoportography.—Inflammatory lesions of the pancreas sometimes extend to affect the portal system of veins, often with resultant thrombosis. Cancers of the pancreas similarly tend to displace and invade these vessels with consequent obstruction of the affected segments. Such alterations may be roentgenologically depicted on films, exposed serially and rapidly, as contrast material is injected directly into the spleen.[82]

Direct Pancreatography.—The pancreatic ducts may be opacified by injecting contrast material through a catheter introduced into the pancreatic ducts at operation.[83] This procedure is still largely in the stage of development. It has some diagnostic promise, however, and has already succeeded in shedding light on the mechanics involved in the production of certain disorders of the pancreas.

GASTROSCOPY

Gastroscopic examination has both negative and positive value in the diagnosis of pancreatic lesions. Its negative value lies in excluding primary lesions of the stomach. From the positive aspect, it may disclose inward bulging of the walls of the stomach caused by an underlying enlarged pancreas.[84]

SUMMARY AND CONCLUSIONS

Clinical, laboratory, and roentgenologic expressions of disorders of the pancreas are numerous, and their diagnostic value is important. Consideration of these features, coupled with heightened awareness of the pancreas, should do much to insure more frequent and earlier recognition of disease of the pancreas.

6767 W. Outer Dr. (35).

ORAL USE OF METHSCOPOLAMINE (PAMINE) BROMIDE IN TREATMENT OF DUODENAL ULCER

EFFECT ON HUMAN GASTRIC SECRETION

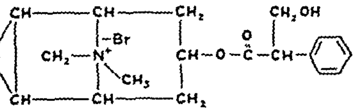
J. Alfred Rider, M.D., Ph.D., John O. Gibbs, M.D., William A. Ranson, M.D.
and
Joyce I. Swader, B.S., San Francisco

"Peptic ulcer is the product of a pathological process as a result of which the gastroduodenal mucosa fails to withstand the digestive action of acid gastric juice."[1] Treatment is limited by the fact that the primary cause of this process is unknown. Nevertheless, free hydrochloric acid seems to be an essential factor in the pathogenesis of peptic ulcer, and satisfactory therapeutic results can be obtained by neutralizing the acid or suppressing its formation. In the past this has been accomplished by the frequent use of antacids, such as calcium carbonate, which chemically neutralize acid. However, since gastric secretion in man is stimulated predominantly via the vagus nerve, there has been an intensive search for drugs that could inhibit vagal impulses either at the parasympathetic ganglions or at the terminal nerve fibers on the parietal cells. Such compounds have been called antisecretory or anticholinergic drugs. Atropine, which has been in use for many years, is the forerunner of this type of therapeutic agent. Whether these agents exert effective ganglionic blocking is controversial, but the main site of action is probably at the nerve endings.

The ideal antisecretory or anticholinergic drug would be one that, administered orally, would consistently produce prolonged inhibtion of acid gastric secretion without the development of tolerance or of undesirable side-effects. It is the purpose of this paper to report the effects of methscopolamine (Pamine) bromide in the treatment of duodenal ulcer and its effect on human gastric acid secretion.

CHEMISTRY AND PHARMACOLOGY

Methscopolamine, the structural formula of which is shown below, differs from atropine in the addition of an epoxide and a methylbromide group. It is colorless, crystalline, thermostable, and freely water soluble. Visscher and co-workers[2] found that the intravenous injection of methscopolamine had a marked gastric anti-



From the Department of Medicine and the Gastrointestinal Clinic, University of California School of Medicine.

This study was supported in part by a grant from the Upjohn Company, Kalamazoo, Mich.

The material in this paper was presented in part as a *Scientific Exhibit* at the 103rd Annual Meeting of the American Medical Association, San Francisco, June 21-25, 1954.

[1] Kirsner, J. B., and Palmer, W. L.: The Problem of Peptic Ulcer, Am. J. Med. **13**: 615-1639, 1952.

[2] Visscher, F. E., and others: Pharmacology of Pamine Bromide, J. Pharmacol. & Exper. Therap. **110**: 188-204, 1954.

secretory effect in the "pyloric-ligated rat." Its potency in micrograms per kilogram of body weight was found to be 5 times that of scopolamine hydrobromide, 35 times that of atropine sulfate, and 350 times that of methantheline bromide. Subcutaneous administration to rats of a dose of methscopolamine 2,400 times greater than the effective antisecretory dose given intravenously produced little or no stimulation of the central nervous system. Ganglionic and myoneural blocking actions in animals were manifest only with very high doses. The predominant effects of methscopolamine are: (1) antisecretory on gastric secretion (both volume and free acid), as well as on salivation and perspiration, (2) antispasmodic on the gastrointestinal tract, and (3) mydriatic.

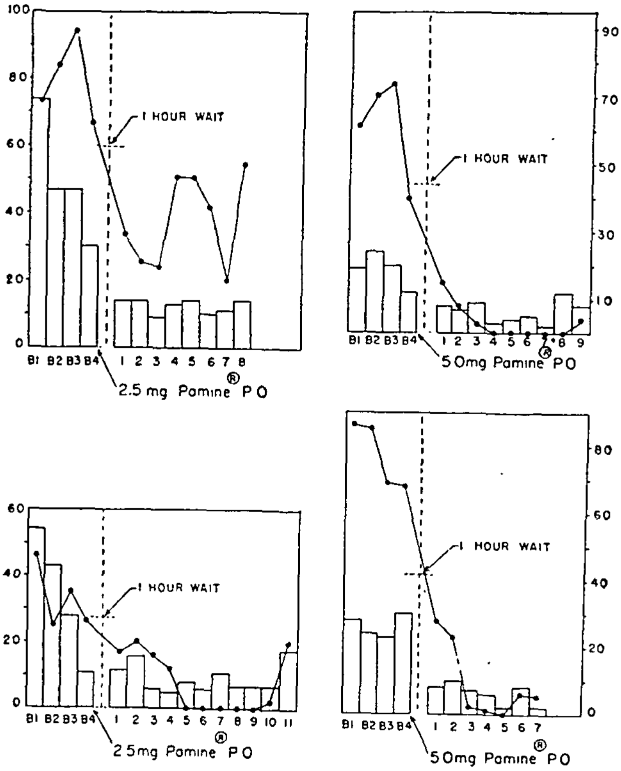


Fig. 1.—Gastric secretory responses of four patients to single orally given test doses of methscopolamine (Pamine) bromide. B1, B2, B3, B4 indicate successive 15-minute collections of basal secretion. In this and subsequent figures, the bars represent volume in milliliters; the line represents free hydrochloric acid in clinical units.

METHODS AND MATERIALS

Study of Effect of the Drug on Human Basal Gastric Secretion.—After the patient had fasted overnight, a Rehfuss tube was passed through his mouth into the stomach. The gastric contents were continuously and completely aspirated by means of a glass syringe, care being taken that the oral secretions were not swallowed. The first aspirate obtained over a two to three minute period was called the residual sample. The next four 15-minute samples were designated basal 1, 2, 3, and 4. The gastric juice obtained during each 15-minute period was measured; free acid was titrated to the salmon pink endpoint of Töpfer's reagent with 0.1 *N* sodium hydroxide. The results obtained were expressed in clinical units. Only patients who had free acid in each of the four 15-minute basal specimens and who had at least 20 clinical units of free hydrochloric acid in one or more of the samples were used in these studies. When these criteria were met, methscopolamine, dissolved in 5 ml. of water, was instilled into the Rehfuss tube, which was then rinsed with an additional 5 ml. of water. After one hour, during which the collection was discontinued, the continuous aspiration was resumed; the secretions obtained during each 15-minute period were tested as before. If anacidity did not occur after at least one hour the test was discontinued. If anacidity did occur, the test was continued until free acid reappeared in the specimens, or as long as practicable.

Study of Clinical Effects in Duodenal Ulcer.—Fifty-five unselected patients with duodenal ulcer were used for clinical testing. The majority had not done well with use of a variety of other medical treatments and could be considered to have "chronic" ulcers. At first, treatment consisted of a diet for patients with ulcers and methscopolamine, given orally in divided doses of from 7.5 to 20 mg. a day, limited only by the severity of un-

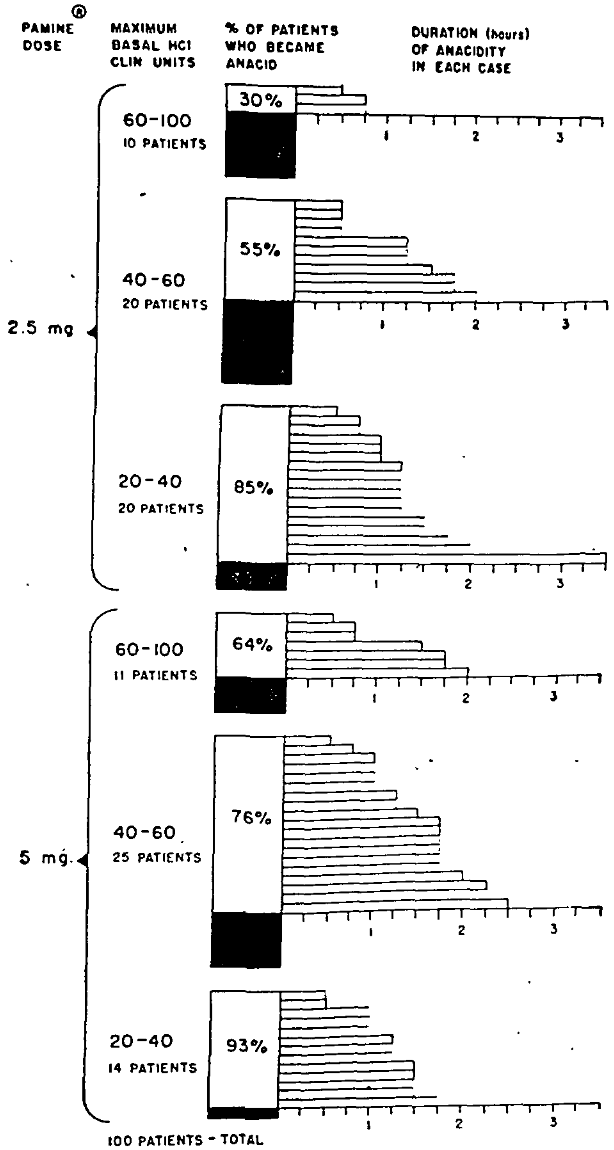


Fig. 2.—Frequency and duration of anacidity after single orally given doses of methscopolamine correlated with the magnitude of the basal hydrochloric acid secretion. The open bars indicate those patients whose gastric secretion was still anacid when the test was discontinued.

pleasant reactions or lack of prompt amelioration of symptoms, in which case antacids were added to the regimen after one to two weeks of therapy.

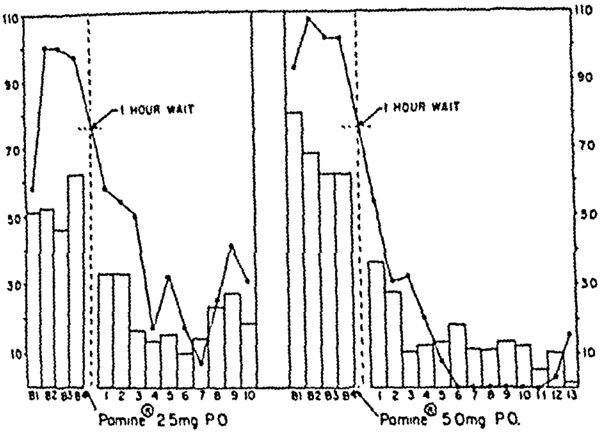


Fig. 3.—Gastric secretory response to single doses of 2.5 and 5 mg. of methscopolamine in the same patients on different days.

RESULTS

Effect on Basal Gastric Secretion.—Typical effects of single orally given doses of 2.5 to 5 mg. of methscopolamine on basal gastric secretion are shown in figure 1. The average effect of methscopolamine on basal gastric secretion in 100 patients is seen in figure 2. It is apparent that the lower the basal acidity and the higher the dose of methscopolamine, the greater the number of patients in whom anacidity was produced. Thus, with a basal acidity of 20 to 40 clinical units and a test dose of 5 mg., the gastric secretions became anacid in 93% of patients, but, with a basal acidity of 60 to 100 clinical units and a dose of 2.5 mg., anacidity developed in only 30%. Side-effects were rarely seen after these single orally given doses. Figure 2 also shows duration of anacidity after administration of methscopolamine in each patient. Since some of the tests were discontinued before free acid returned, it was not possible to obtain an average value for the duration of anacidity. The maximum period of anacidity observed was three and one-half hours. No attempt was made to calculate the individual degree of reduction in free acidity in those patients in whom anacidity was not produced. Even though it was observed that in the great majority of these patients acidity was decreased after methscopolamine, we evaluated individually only those to whom we could apply the more precise criterion of anacidity.

Average Values for Volume and Free Hydrochloric Acid in Basal Samples and in Hour of Response to Single Orally Given Doses of Methscopolamine

	50 Patients Given 2.5 Mg. Dose		50 Patients Given 5 Mg. Dose	
	Volume, Ml.	Hydrochloric Acid, Free Clinical Units	Volume, Ml.	Hydrochloric Acid, Free Clinical Units
Average 4 basal samples	24.0	35	31.3	39.3
Average 4 samples in hour of methscopolamine response	12.2	11.6	13.7	7.3
% decrease	49.3	67.2	56.3	81.5

The table shows the average volume and average acidity of the four basal samples of 50 patients who were tested with 2.5 mg. of methscopolamine and 50 patients who were tested with 5 mg. The basal values are compared with the results obtained after the single dose of methscopolamine. It can be seen that the 5 mg. dose is the more effective since there was a decrease of 81.5% in the free acidity, but the decrease in volume was not significantly greater. Similar results were obtained when a repeat gastric analysis after a single orally given dose of 2.5 mg. of methscopolamine was compared to a gastric analysis after a 5 mg. dose in the same patient. Figure 3 shows the gastric secretory response to single doses of 2.5 and 5 mg. of methscopolamine in a representative patient. The results indicate that in the same patient the larger dose is more effective.

To determine whether prolonged therapy with methscopolamine would influence the acidity and volume of the basal gastric secretion, repeat gastric analyses were done on 25 patients who were maintained on a schedule of 7.5 to 40 mg. of methscopolamine a day in divided doses for periods up to 18 months. Figure 4*A* compares the average basal gastric acidity and volume before therapy with that during prolonged therapy. It can be seen that the residual samples showed no decrease in volume but that free acidity was reduced by 34.3%. The four basal samples showed a fall in volume of 28.8% and a decrease in free hydrochloric acid of 30.6%. In 10 of these patients, gastric analyses after single doses of methscopolamine were repeated on numerous occasions during maintenance on daily doses of methscopolamine. Figure 4*B* compares the average

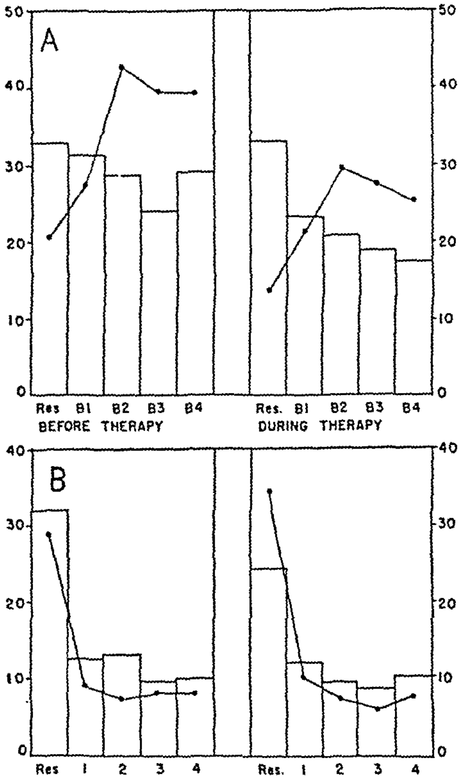


Fig. 4.—*A*, basal gastric secretion before and during methscopolamine therapy, averages of 25 patients. *B*, gastric secretory response to single orally given test doses of methscopolamine before and during therapy, averages of 10 patients.

volume and free acid of the gastric secretions of these patients after the first test dose of methscopolamine with those of subsequent tests (with the same dose) during daily maintenance therapy with methscopolamine. These results indicate that the inhibitory effect of methscopolamine on gastric secretions does not decrease, even during prolonged therapy, nor does it increase.

Clinical Results in Treatment of Duodenal Ulcer.—Fifty-five patients with "chronic" ulcer were first treated with methscopolamine and diet alone. The dose of methscopolamine was frequently, but not always, increased to the point of unpleasant side-effects; yet only 7.3% of the patients became symptom-free with doses of from 7.5 to 40 mg. of methscopolamine a day. The usual dose schedule was 2.5 mg. before meals and 5 mg. at bedtime. When it became apparent that methscopolamine and diet alone were not completely effective in the majority of these patients, antacids were added as indicated, but in no case was it necessary for the patient to take antacids during the night. The usual antacid was calcium carbonate or an aluminum hydroxide preparation. The therapeutic results in the 55 patients treated for periods up to 18 months were as follows. In 36.4% of these patients it was necessary to use antacids from one to four times per day. In 56.3% administration of antacids was necessary every two hours during the day. Of the total group treated, 63.7% were completely asymptomatic and 30.8% had occasional symptoms; only 5.4% continued to have fairly regular symptoms, but these seemed easier to control than before treatment. It can be seen that the majority became asymptomatic as a result of combined treatment with methscopolamine and minimal to moderate amounts of antacids. X-ray evidence of healing closely paralleled sustained relief of symptoms.

The severity, type, and frequency of undesirable side-effects in these patients were as follows. There were 51 instances of side-effects in 33 patients. Dryness of the mouth was present in 20, constipation in 18, blurring of vision in 9, and difficult micturition in 4. Forty per cent of the patients manifested no side-effects. Even though some undesirable reactions occurred in the majority of patients, in only one were they severe enough to require discontinuing treatment.

SUMMARY AND CONCLUSIONS

Methscopolamine (Pamine) bromide is an orally effective parasympatholytic drug that blocks vagal impulses to the parietal cells at the terminal fibers or at the cellular level. It inhibits gastric secretion by decreasing both volume and free hydrochloric acid. Study of the effect of single orally given doses of methscopolamine on the basal secretory pattern shows that the higher the initial level of free hydrochloric acid, the larger the dose of methscopolamine required to induce anacidity. Repeated basal gastric analyses during prolonged therapy with methscopolamine demonstrated decreases in both volume and free acidity compared to the pretreatment levels. No diminution in the effect of single tests doses of methscopolamine on gastric secretion was observed after prolonged daily administration of the drug.

Undesirable reactions occurred in 60% of 55 patients with duodenal ulcer receiving an average daily dose of 12.5 mg. These were usually mild and only rarely prevented continued administration of the drug. Methscopolamine alone rarely produced complete relief of symptoms; clinical results were much more satisfactory when antacids were added to the therapeutic regimen. Although methscopolamine is not a substitute for conventional ulcer management, it is a valuable adjunct and makes management of the patient easier. We agree with Kirsner, Levin, and Palmer [3] that the ideal gastric antisecretory agent has not been found but that substantial progress has been made toward this objective.

---

3. Kirsner, J. B.; Levin, E., and Palmer, W. L.: Pamine Bromide: Gastric Antisecretory Effects and Therapeutic Usefulness in Peptic Ulcer and Other Gastrointestinal Disorders, Gastroenterology **26**: 852-867, 1954.

END-RESULT OBSERVATIONS INFLUENCING TREATMENT OF FRACTURES OF THE SHAFT OF THE TIBIA

Marshall R. Urist, M.D., Los Angeles

Fractures of the leg, especially comminuted fractures of the tibia and fibula, heal more slowly and present more complications than those of almost any other skeletal area. At the level of middle and lower thirds, the tibia is composed chiefly of dense compact bone, a lining of inactive substantia spongiosa, and a medullary cavity filled with fatty bone marrow. The periosteum in this location has hardly any capacity for proliferation of external callus. The fracture must heal mainly by means of endosteal new bone formation. The process is extremely slow and the period of healing is necessarily prolonged under these circumstances, especially if bone contact is slight or if there is actual separation of the fracture surfaces.[1] Surgical treatment fails to alter the indolence of the tibia. The tibia justifies Pease's [2] criticism of modern fracture treatment more than any other part of the skeleton; it gives little support to those who may take the affirmative in the current debate about open versus closed treatment.[3]

In a recent paper, I, with Mazet and McLean,[4] reported the results of a study of matched cases among 100 consecutive healed fractures and 85 ununited fractures of the tibia. In this study the emphasis was on the pathogenesis and treatment of delayed union and nonunion, and these subjects were given detailed consideration. The present paper makes use of the same material, but with a different purpose in mind. The effort here has been to draw conclusions from the end-results of the

---

From the Department of Surgery, Division of Orthopedics, University of California.

Read before the meeting of the Pan-Pacific Surgical Association, Honolulu, Hawaii, Oct. 14, 1954.

These investigations were aided by a grant from the Josiah Macy, Jr., Foundation.

fractures studied that bear on the choice and course of treatment from the time of the injury. The objective, of course, is to select methods of treatment that will lead to the most favorable results possible, and that will avoid the complications of sepsis, slow healing, and nonunion. The material studied is rich in contributions to this objective.

The results of this study lead inevitably to the general statement that closed treatment of fractures of the tibia is superior in every way, and under nearly all circumstances, to open reduction. This conclusion is reached in spite of the increasing use of open methods of surgery; the considerations entering into the conclusion are examined below.

CLOSED TREATMENT

Long-term end-result survey reports of the past 20 years have established the conclusion that closed treatment of fractures of the tibia, in skilled hands, is superior in every respect to open reduction.[5] Such treatment presupposes a well-fitted properly padded long leg cast with appropriate after-care. The criteria for this judgment include: (1) diminution in the period of hospitalization; (2) reduction in the costs of medical care; and (3) reduction in the over-all risks of complications, including sepsis and delayed healing or nonunion. The evidence in favor of closed methods of treatment is especially compelling in cases of fresh comminuted fractures of the tibia. These fractures have always been the most difficult problem with respect to the shaft of the tibia.[6] The end-results show without doubt that closed treatment is the only safe procedure and that such fractures should, in fact, be regarded as nonoperable, in the sense that open operation is almost certain to be detrimental to the welfare of the patient.

The skill required for closed treatment seems not to be valued highly enough by the laity or by the medical profession at the present time. The result is that closed treatment, in the case of the lower leg, at least, is not as generally used as it should be. The effort, patience, and time required to treat a fracture of the tibia and fibula by closed methods for nine months are fully as great as by open methods. It is unfortunate that not all surgeons are able to develop the required skills with closed methods, or to achieve consistently good results with conservative treatment. Charnley's reiteration of the principles and practice of closed treatment of fractures and his technique of holding the reduction by internal angulation of the fracture should be reviewed by those who are dissatisfied with nonoperative methods.[5c] In addition to his technical skill in the management of fractures by closed methods, the surgeon must be prepared to instruct the patient in the special problems of the tibia and to explain why it is in his best interest that he should tolerate a cast for a longer time than he had expected. The surgeon may anticipate that the patient will tell him about a friend who had an open operation and was out of plaster several months earlier, but he will often have heard of another patient who had an infection and nonunion or amputation following an open operation. It is then not difficult to convince him that conservative treatment is indicated.

Disadvantages of Closed Treatment.—The disadvantages of closed treatment include the considerations that lead so frequently to open treatment. The skin becomes mummified after long periods of encasement in plaster. The joints tend to become stiffened. The bones develop the atrophy of disuse. Causalgia, intractable edema and swelling, and decubitus ulcers unfortunately do occur in many cases. It does not follow, however, that these complications are preventable by current methods of open treatment, even though these methods may reduce the time the leg is in plaster.

Contraindications to the Use of Internal Fixation.—The surgeon may be aided in his decision to adopt conservative methods of treatment of fractures of the tibia by a consideration of the contraindications to the use of alternative methods. In view of favorable results following internal fixation in fractures of the femur, it has been perhaps inevitable that this should become a popular method also of treatment of fractures of the tibia, a bone that lends itself equally well to the mechanical aspects of this procedure. A large enough number of poor results and complications have, however, accumulated to diminish the use of this method, in fractures of the tibia, in the majority of teaching centers in the United States. It is difficult to determine whether these more conservative policies have or will have any effect on the over-all practice of fracture surgery in the community. For the resident in training the picture is especially confused by the conflicting factors of (1) the justifiable use of transfixation screws without bone plates for certain spiral fractures, and (2) extravagant claims for the new designs of devices for intramedullary fixation for the tibia.

The type of fracture that responds well to open surgery is precisely that which gives good results also by closed methods. Transfixation screws, bone plates, Parham bands, and intramedullary nails are generally successful in noncomminuted fractures, but these may be treated at least equally well without open operation. The chief beneficial effect of open reduction is to eliminate separation of the fracture surfaces, and thereby to reduce healing time. This can reduce the time in plaster as much as two or three months. Against this possibility, however, must be weighed the added risks of sepsis and of delayed healing or nonunion introduced by open reduction

---

1. Urist, M. R., and Johnson, R. W., Jr.: Calcification and Ossification: IV. Healing of Fractures in Man Under Clinical Conditions, J. Bone & Joint Surg. **25**: 375-426, 1943.

2. Pease, C. N.: A Critical Analysis of the Fracture Problem, J. A. M. A. **156**: 805-807 (Oct. 30) 1954.

3. Jaslow, I. A.: The Fracture Problem, Correspondence, J. A. M. A. **157**: 76 (Jan. 1) 1955.

4. Urist, M. R.; Mazet, R., Jr., and McLean, F. C.: The Pathogenesis and Treatment of Delayed Union and Non-Union: A Survey of 85 Ununited Fractures of the Shaft of the Tibia and 100 Control Cases with Similar Injuries, J. Bone & Joint Surg. **36A**: 931-967, 1954.

5. (*a*) Albert, M.: Delayed Union in Fractures of the Tibia and Fibula, J. Bone & Joint Surg. **26**: 566-578, 1944. (*b*) Carpenter, E. B.; Dobbie, J. J., and Siewers, C. F.: Fractures of the Shaft of the Tibia and Fibula: Comparative End-Results from Various Types of Treatment in a Teaching Hospital, A. M. A. Arch. Surg. **64**: 443-456 (April) 1952. (c) Charnley, J.: The Closed Treatment of Common Fractures, Baltimore, Williams & Wilkins Company, 1950. (*d*) Funsten, R. V., and Lee, R. W.: Healing Time in Fractures of the Shafts of the Tibia and Femur, J. Bone & Joint Surg. **27**: 395-400, 1945. (*e*) McLaughlin, H. L.; Gaston, S. R.; Neer, C. S., and Craig, F. S.: Open Reduction and Internal Fixation of Fractures of the Long Bones, ibid. **31A**: 94-101, 1949. (*f*) Young, H. H., and Blaisdell, J. S.: A Comparative Study of Several Methods of Treatment of Fractures of the Shaft of the Tibia, S. Clin. North America **23**: 967-981, 1943.

6. Parson, L.: Fractures of the Shaft of the Long Bones of the Leg, in Experience in the Management of Fractures and Dislocations, edited by P. D. Wilson, Philadelphia, J. B. Lippincott Company, 1938.

and internal fixation. The evidence against the choice of open operation in fresh comminuted fractures of the tibia is overwhelming. Surgical intervention in such fractures is seldom, if ever, justifiable.

The series reported by me with Mazet and McLean was studied by matching cases of closed fracture with those treated by all forms of internal fixation, including transfixation pins. Internal fixation never decreased and often actually prolonged the healing time. Necrosis and absorption of bone occurred between the screws, especially if they were placed too close together (less than 1 cm. apart). This retarded healing and, sometimes but not always, led to nonunion. Interrupted immobilization, ill-advised early weight-bearing, and friction and motion between bone ends were some of the critical factors leading to nonunion following open treatment.

Sepsis.—Even in this era of the everyday use of antibiotic drugs for the prevention and treatment of infection, approximately 7% of compound comminuted fractures of the tibia are complicated by sepsis. The incidence of secondary osteomyelitis is increased to 12% when fractures originally closed but treated by open operation are added to this group of wound infections. Except in instances in which internal fixation was applied per primam intentionem, it can be assumed that sepsis was unavoidable. At least 3% of the cases in any random series of compound fractures seem to have been contaminated with foreign material and bacteria against which injured tissues have only an inadequate defense. Primary treatment for compound fractures that has proved by experience to be quite satisfactory is as follows: (1) a bold incision with minimum or no dissection of the bone ends; (2) thorough irrigation of the wound with at least 2,000 cc. of isotonic sodium chloride solution; (3) excision of all tissue that appears to be contused, macerated, or necrotic; (4) manipulation and reduction without internal fixation; (5) loose closure of the wound if the operation was performed less than 8 to 16 hours after injury; (6) a properly-padded well-fitted long leg plaster encasement; and (7) daily injections of 400,000 I. U. of penicillin, accompanied by 1.0 gm. per day of streptomycin by mouth.

It is reasonable to assume that in the hands of a surgeon with a great deal of experience with compound comminuted fractures, the incidence of wound infection may be reduced from 7 to 2 or 3% by the use of the above outlined treatment. In cases in which there had been an open operation with internal fixation, the infection is much more extensive, prolonged, and resistant to treatment than in cases in which there had been no metallic fixation. The saddest picture of all is the x-ray film that shows a perfect piece of cabinet work with a bone plate in a leg that had to be amputated because of overwhelming sepsis. There were three such instances in patients admitted to the Wadsworth service from outlying hospitals from 1948 to 1953.[4]

Infected compound fractures wisely treated without metallic implants rarely develop chronic osteomyelitis or require amputation. The infection is often limited to a very small area of the bone or involves only soft parts on the medial aspect of the leg. Prolonged immobilization in plaster is the best treatment after the necessary local management of the wound, such as with wet dressings, sodium hypochlorite (Dakin's solution), or newer enzyme preparations to dissolve slough. It is generally believed that after six months without drainage it is safe to attempt a surgical attack on the fracture site to improve the position of the fracture or to apply internal fixation or a bone graft. End-result observations show that this generalization is false. After a fracture of the tibia has been infected, there is no safe period for open operation. The best indications are the condition of the skin and the appearance of the bone ends in the roentgenograms. Edematous skin and scars with bluish discoloration adherent to the scar suggest conditions adverse for surgery. A diffuse osteoplastic reaction in one or the other of the bone ends indicates latent infection that might flare up after surgical incision of the fracture and the overlying tissues.

AIDS TO CLOSED TREATMENT

Comminuted fractures, especially the oblique types with single wedge-shaped fragments, are sometimes difficult to retain in good position in a plaster cast alone. Some contact between the bone ends is absolutely essential if union is to be expected within a year. The greater the surface area and the closer the contact, the less the healing time. It must be emphasized, however, that restoration of alignment, as can be seen in the gross appearance of a straight leg, is required for satisfactory treatment of a severely comminuted fracture. When the fragments are not in contact, or when the leg is grossly shortened (more than 1.0 cm.) and deformed by the forces of muscle contraction, there are three methods that are used as aids to closed treatment. These methods were employed in the cases I observed as follows:

Skeletal Traction.—Compound comminuted fractures with loss of skin and bone substance and with sepsis were managed in skeletal traction with a 5 lb. (2.3 kg.) weight to prevent gross angulation or bowing. The method has the advantage of being a great convenience for dressing of large wounds and for watching the circulation of a severely damaged wound. For this reason, it was advocated by the surgeon general for treatment of shell-fragment fractures in World War II. The correct use of the method depends upon transfer of the limb to a long leg plaster within four to six weeks. For longer periods, it does not give enough immobilization to restrict motion and friction and to prevent delayed healing or nonunion. It is not usually advised for noncomminuted fractures of the shaft of the tibia or any type that can be treated successfully in any other way.[5a]

Transfixation Pins in Plaster.—Application of transfixation pins in plaster is often used for unstable fractures to avoid the hazards of open reduction and internal fixation. The pins become bent inside the plaster to bring the fracture ends together whenever great distraction is applied to hold the reduction. When one considers the extraordinary tension produced in leg-lengthening operations, there is some reason to doubt that the idea of distraction, a major cause of delayed union, deserves the emphasis it has been given in the literature. It is clear, however, that the healing time is proportional to the amount of separation of the bone fragments and length of the damaged portion of the shaft. Comminuted fractures with single wedge fragments account for most of the "unstable fractures" classified as delayed union. This type may require as long as 9 months to heal and could unite if treated by transfixation for only 6 weeks and then left undisturbed in plaster for 12 to 18 months. It should be noted, however, that transfixation pins to prevent overriding were often unnecessary if the leg was immobilized with the knee at 100 degrees flexion in the first plaster, and 160 degrees in the second plaster. Furthermore, it is advisable to allow a certain amount of shortening—up to 1.0 cm.—to allow the fragments of a comminuted fracture to come together to obtain earlier union. This is preferable to forceful methods of retaining the original length of the leg. Slow healing or delayed union were described in approximately 10% of comminuted fractures treated with pins through plaster. Pin tract infections and skin slough also occur but can be regarded as results of errors in technique.

External Skeletal Fixation.—The Haines, Roger-Anderson, and Stader apparatus can be found covered with the dust of 10 years' time in splint rooms in nearly all large medical centers. Occasionally one or the other of these splints has been brought out and applied in some one case or special research problem. But even for limited purposes their use has been short-lived. The reason has not been so much because of pin tract infections, delayed union, and other complications but actually because closed methods in plaster are more comfortable for the patient and achieve the same or better end-results. The situation is much the same as in the history of many clinical research projects. The individual who introduces a new method gives it so much care and attention and achieves such proficiency that the results are less dependent upon the method than upon the diligence and good judgment with which it was applied.

OPEN SURGICAL TREATMENT

Open treatment of the tibia ordinarily consists of surgical exposure of the fracture site and direct manipulation of the bone ends until the fracture surfaces are brought in close contact. The procedure is rarely finished without application of some form of fixation to maintain the reduction. But the wise surgeon omits this step when dealing with compound or any other kind of fractures in very young children. He simply holds the fracture together manually until the wound is closed and the leg is immobilized in plaster. Even in adults, this is not done often enough. The temptation to make an extensive dissection to apply rigid internal fixation is too much to resist for the inexperienced or mechanically minded surgeon. It must be admitted, however, that technical skill can overcome many of the objections to open surgical treatment. Internal fixation can be applied without complete dissection of soft parts from the bone ends. An expert surgeon can exhibit excellent results from internal fixation in a large number of cases.

Modern history records many attempts to devise a set of rules for the use of internal fixation by the many surgeons who profess to treat fractures. Thus far all such attempts to establish a universal standard or policy have failed to have any appreciable influence on the over-all conduct of fracture treatment. Actually, it is impossible to treat a consecutive series of fractures of the tibia by open methods without doing unnecessary surgery on at least half of the patients. This is the basic reason for failure of the strong proponents of open reduction and internal fixation of the past. The majority of its proponents today practice the principle that a surgeon's armamentarium must include a knowledge of the use of all methods and appliances. Inasmuch as it is the end-result, not the method of achieving it, that is most important, the knowledge of what not to do to the human tibia is the heart of the problem of treatment of fractures of the leg.

There are at least five different types of internal fixation that a surgeon should know he must not use routinely for the treatment of some fractures of the shaft of the tibia. The indications and frequency of the use of each differs now from when it was first introduced and, in some instances, even from the way it was used only 10 years ago. The passage of time, hospital teaching policies, and influential authoritative writers have affected the general picture of treatment of the tibia in many ways. At the present time there appears to be more uncertainty and controversy than ever before—perhaps because there is now a larger number of methods. The conclusions gained from the Wadsworth series[4] about the value, contraindications, and current usage of each method will be summarized briefly below.

Transfixation Screw.—The transfixation screw was employed only for long, oblique, or spiral fractures. It was frequently successful when the operative technique was correct and one screw was all that was needed to hold the fracture together long enough to sew up the wound and apply a close-fitting, very slightly padded, long leg cast. If two screws were used and placed at least 2 or 3 cm. apart for a long spiral fracture, a good result and union was usually obtained within six months. More than one or two screws usually hindered rather than helped bone repair. If the screws were placed less than 1 cm. apart at any one point, necrosis and disintegration of bone occurred between them. Another error in technique in the use of transfixation screws and the main predisposing factor in delayed healing and nonunion was excessive stripping of soft parts from the fracture fragments to apply internal fixation. The over-all incidence of delayed union with this method was not less than 7%.[7]

Bone Plates.—Lane plates were used with success in noncomminuted transverse or short oblique fractures but frequently caused disaster in comminuted fractures. Sepsis, infection, and large skin slough were the usual complications. Newer designs of sliding bone plates were not more effective than nonsliding plates. The effect on the course of fracture healing appeared to be the same as with Lane plates. Bone plates were rarely used by surgeons with a great deal of experience with other methods of treatment of fractures of the tibia. Bone plates were, however, readily available on the shelves of the surgical stock rooms of all small and large hospitals and used by physicians and surgeons of all specialties on all types of fractures. The over-all incidence of delayed healing and nonunion was more than 30%.

---

[7] White, E. H.; Radley, T. J., and Earley, N. N.: Screw Stabilization in Fractures of Tibial Shaft, J. Bone & Joint Surg. 35A: 749-755, 1953.

Parham Bands.—Parham bands are not generally available in all hospitals. This appliance was used by a few individuals who were highly experienced and well-informed about its limitations. One surgeon who specialized in ski accidents treated long spiral fractures of the tibia with success by this method. Parham bands for fractures in general have been discarded nearly everywhere in the United States.

Wire (Cerclage).—The technique of using wire consists of application of a loop of wire across one or two sides of the cortex to tie the bone ends together in order to prevent gross displacement from occurring inside the cast. The method has been popular in France and in a few localities in America. In general, it is not held in very high regard. It has been used most effectively after débridement of compound fractures in which larger metal appliances would not be well tolerated. It was useful in noncomminuted transverse and short oblique fractures but hardly worth the effort for comminuted fractures. The wire broke very soon after patients were allowed up in walking plasters if the fracture was not completely consolidated.

Intramedullary Fixation.—The intramedullary nail has not occupied the same important place in the treatment of fractures of the tibia as in the femur. European investigators very early found that the tibia was not as receptive as other parts of the skeleton, which proliferate and heal readily following a fracture. New designs of the intramedullary nail with a special curve at the distal end are now available for the specific purpose of rigid internal fixation of fractures of the tibia. Many successful results have been reported with a relatively low percentage of delayed healing or nonunion. The situation with respect to this new method, however, is that it appears to be most successful in noncomminuted fractures, which ordinarily heal well within six months by conservative treatment in plaster. It is dangerous, as are other open methods in the compound comminuted fractures, which are the main problem of treatment of the tibia. In fractures at the junction of the middle and lower thirds, which heal very slowly, the nail does not give particularly good fixation of a short distal fragment. Unless the fracture is in the middle or upper third, and the nail fits very tightly, it has been hardly possible to dispense with a long leg cast. After all of these considerations are carefully weighed against the risks of open surgery, it is very difficult to find a case in which intramedullary nailing of the tibia is really indicated. The possibilities of intramedullary nailing techniques that do not open the main fracture site, however, do offer interesting fields for further investigation.

DELAYED HEALING AND NONUNION

Many clinical causes and combinations of causes such as (1) separation of bone surfaces, (2) exposed bone, (3) sepsis, (4) excessive internal fixation, and (5) insufficient immobilization appear to be responsible for delayed healing and nonunion. The permutations and combinations of these factors are enormous, so that it is usually impossible to be certain that any one cause is the true cause of nonunion.[8] Whatever the clinical circumstances may be, there appears to be one and only one mechanism of nonunion. Newer histochemical techniques applied to the study of biopsy specimens of fractures have revealed fibrinoid degeneration of connective tissue in the interior of the callus in all patients with delayed healing and nonunion, regardless of the clinical cause that led to the complication.[4] Morphologically, fibrinoid is a mixture of collagen and groundsubstance in all stages of degradation. As the term suggests, it is like fibrin, but it is not fibrin. This material accumulates in the callus whenever there is extensive necrosis of tissue, sepsis, and insufficient immobilization of the fracture. Motion and friction stimulate the production of fibrinoid. The process appears to be similar to that seen in chronic adventitious bursitis except that fibrinoid is deposited inside of a mass of inflammatory connective tissue between the bone ends rather than over a bony prominence. Microscopically, fibrinoid appears in the callus as an acellular, homogeneous, highly refractile, acidophilic material. Its mucopolysaccharide component stains metachromatically with toluidine blue or a pink color with the McManus-Hotchkiss procedure. Fibrinoid appears as a mixture of colors with Mallory's stain. X-ray diffraction and electron-microscope studies reveal disoriented collagen fibers in the early stages and chiefly amorphous material in the later stages of fibrinoid degeneration.

The formation of a pseudarthrosis develops after a single or repeated mechanical disturbance has split the amorphous fibrinoid material into two parts. Fibrinoid imbibes water and forms a cavity filled with mucinous fluid in the center of the callus. Hydrostatic pressure created by osmosis may reach such proportions as to break metallic appliances used for internal fixation and to refracture surrounding areas of bone. With continued motion and friction between the fracture surfaces, new bone formation occurs all around but not across the main fragments. The bone ends show rounding, mushrooming, and molding of the opposing surfaces. The bone tissue becomes sclerotic, and the medullary canal becomes sealed with compact bone. The appearance of the x-ray picture gives the impression that bone repair is at a standstill. In many cases this is an erroneous idea and not the true state of affairs, especially if the observation is less that 18 months after injury. Formation and resorption of bone are endlessly active processes everywhere in the skeleton, including the area of a fracture. For this reason there are many cases, even at this late stage, that will unite if the fracture is immobilized for a longer period of time in plaster, or by means of a synostosis operation that does not include the fracture site.

Immobilization of the fracture prevents further motion, friction, and mechanical inflammation and stops further formation of fibrinoid in the callus. The defects refill with granulation tissue, fibrous tissue, and fibrocartilage, which are then replaced by new bone. The same effect can be elicited by a bone graft operation. An onlay bone graft implanted across the surface of the fracture without excision of fibrocartilaginous callus seems to introduce two factors: (1) an internal splint and (2) a new proliferative response and new bone formation by induction across the fracture gap. Autogenous, homogenous, heterogenous, and even boiled bone has been found to produce union of the fracture. The success of the operation depends primarily upon the condition of the bone ends and the proliferative response of the bone tissue near the fracture; only secondarily does it depend upon the bone grafting material or the mechanics of the surgical technique. The role of the bone graft is that of an inductor. Its effect is like that of a catalyst in a chemical process, since it does not itself enter into the reaction between the bone ends but induces it by a physical-chemical effect that occurs as soon as contact is established between the donor tissue and the host bed.[9]

---

[8] Watson-Jones, R., and Coltart, W. D.: Slow Union of Fractures, with Study of 804 Fractures of Shafts of Tibia and Femur, Brit. J. Surg. 30: 260-276, 1943. Watson-Jones, R.: Fractures and Joint Injuries, Baltimore, Williams & Wilkins Company, 1946, vol. 1.

COMMENT

Resident training institutions and specialty examining boards emphasize the principle that there is wisdom and virtue in treating fractures of the tibia like those of any other long bone; that is, first by closed methods and efficient immobilization and then by surgery only if other methods fail. In actual practice in the community, however, open treatment of the tibia without any attempt to use closed methods is far commoner than is necessary or desirable for the welfare of the patient. This difference between academic teaching and actual practice on patients is the heart of the "fracture problem."

The practice of fracture surgery by physicians at large in the community is influenced by psychological, social, and economic factors, which are many and complex. It is not within the scope of this communication to discuss economic pressures that confront the doctor and that confuse the patient in many instances. Only one fact observed by me and my associates needs special emphasis. Nonoperative methods of management of the tibia require as much or more professional background, ability, effort, and patience than open reduction or internal fixation operations. A surgeon's competence with the tibia should, thus, be judged chiefly by his ability to perform closed operations.

This report is written in an effort to clarify the situation with respect to indications and contraindications for open and closed treatment of fractures of the tibia. It does not, as other recent communications have done,[10] attempt a broader consideration of the use of open and closed methods, nor is it intended to depreciate open treatment of fractures of other areas, e. g., the neck of the femur, the patella, the head of the radius, and other fractures inside of joints. The conclusions arrived at in this report lead to the belief that the surgeon should be encouraged to use closed methods oftener in treatment of fractures of the tibia, because this policy can diminish: (1) the period of hospitalization; (2) the costs of medical care; (3) the over-all risks of complications; and (4) the incidence of delayed healing and nonunion.

SUMMARY AND CONCLUSIONS

Fractures of the shaft of the tibia present special problems to the surgeon, requiring attention to considerations not necessarily present in fractures of other bones. Closed treatment of fractures of the tibia is superior in every way, and under nearly all circumstances, to open reduction and internal fixation. Fresh comminuted fractures of the tibia should be regarded as nonoperable, in the sense that open surgical treatment is almost certain to be detrimental to the welfare of the patient. The mechanism of delayed healing and nonunion of fractures, whatever may be the clinical causes and combination of causes, appears always to be the occurrence of fibrinoid degeneration of connective tissue in the interior of the callus. New methods of attack on the problem of the slow-healing tibia should be evaluated in comparison with nonoperative treatment, rather than with other operative methods of management. Since nonoperative methods of treatment of fractures of the tibia require as much or more professional ability, effort, and patience than open reduction and internal fixation, the skill needed for closed treatment should be held in higher regard than it is now by the medical profession and by the laity.

1019 Gayley Ave. (24).

[9] Urist, M. R., and McLean, F. C.: Symposium on Skeletal Trauma: The Local Physiology of Bone Repair with Particular Reference to the Process of New Bone Formation by Induction, Am. J. Surg. 85:444-448, 1953. Urist, M. R.: The Physiologic Basis of Bone Graft Surgery with Special Reference to the Process of New Bone Formation by Induction, in Clinical Orthopaedics, edited by A. F. DePalma, Philadelphia, J. B. Lippincott Company, 1953, vol. 1, pp. 207-216. Urist, Mazet, and McLean.[4]

[10] Jaslow,[3] Pease.[2]

The Sodium in Water.—With the exception of occasional casual mention, drinking water has been overlooked as a source of sodium sufficiently large to nullify attempts to restrict that element in the rest of the diet. The determination of the Na content of the water supply should be an essential part of the establishment of a restricted sodium regimen. Where the upper NaCl limit prescribed is low, such as the Kempner rice diet for hypertensive patients, even a very low concentration in the water supply may be very significant. In such cases, it is very likely that a de-ionized or distilled water may be required, for even the usually low-sodium surface supplies may prove objectionable. . . . Of paramount importance is recognition of the potential problem by the attending physician and the dietitian on the case, in order that the efficacy of otherwise carefully planned diets and conscientious application by the patient may not be contravened. The additional effort involved in analyzing the situation is certainly justified, even though it may be significant and applicable for only a small minority of all cases in which this type of therapy is indicated. Recognition is significant also from the standpoint of certain complications that occasionally accompany sodium restriction therapy, notably the "sodium depletion" syndrome. To date, relatively few complications have been reported, possibly because the rigidity of sodium restriction frequently is not as great as that prescribed. With increasingly more complete information now at hand for the physician and dietitian pertaining to sources and actual amounts of sodium taken into the body, the degree of sodium restriction may be increased and perhaps more frequent complications will be realized unless otherwise compensated for.—E. J. Laubusch and C. S. McCammon, M.D., Water as a Sodium Source and Its Relation to Sodium Restriction Therapy, *American Journal of Public Health*, October, 1955.

CLINICAL EXPERIENCE WITH WARFARIN (COUMADIN) SODIUM, A NEW ANTICOAGULANT

Col. Byron E. Pollock (MC), U. S. Army

Although the presently available anticoagulants have been of great clinical usefulness, well-recognized defects are inherent in them. Heparin requires frequent parenteral administration and is costly. Bishydroxycoumarin (Dicumarol) has a long latent period between the time of administration and onset of therapeutic effect. Ethyl biscoumacetate (Tromexan) loses therapeutic effect within a few hours after reaching the therapeutic level, thus rendering smooth control of anticoagulant action difficult. Other of the newer anticoagulants possess undesirable side-reactions. A more nearly ideal anticoagulant continues to be a practical need. For this reason a clinical study has been conducted on warfarin (Coumadin) sodium, one of the group of coumarin drugs produced by Dr. Karl Paul Link and his group at the University of Wisconsin.[1] The substance, 3-(α-phenyl-β-acetylethyl)-4-hydroxycoumarin, is highly active as a hypoprothrombinemic agent, is soluble and stable, and is suitable for intravenous use. The relationship of warfarin sodium to bishydroxycoumarin is shown in fig. 1.

Animal experiments in Professor Link's laboratory[2] have shown this substance to possess no effects other than hemorrhage at excessive dosage and to produce a much greater hypoprothrombinemic effect weight for weight than bishydroxycoumarin. This effect is reversible with menadione and phytonadione (vitamin K_1). Lange and Terveer[3] in 1954 added information on toxicity of this substance to the human in their report of accidental warfarin poisoning in a family of 14 Korean civilians who ingested over a 15 day period 50 lb. (23 kg.) of mixed corn meal rodenticide containing 5.8 gm. of warfarin. In spite of excessive amounts as compared to clinical dosage, it was 7 days before symptoms appeared, 15 days before a death occurred, and the 12 patients who received treatment recovered.

Earlier reports on clinical experience with the intravenous administration of the drug were made in 1953 by Shapiro,[2a] who used warfarin sodium in 100 cases, and by Wolff and associates,[4] who gave 35 injections of warfarin sodium in the treatment of 29 patients. Clatanoff and his associates[5] reported in 1954 the effect of intravenously administered warfarin sodium in 20 patients and of orally administered warfarin or warfarin sodium in 16 patients.

METHOD

My use of warfarin sodium given intravenously as an anticoagulant was begun in May, 1953, and, in March, 1954, I began use of tablets for oral administration. Ten cubic centimeter ampuls of warfarin sodium containing 75 mg. of the drug were secured for intravenous use. Scored tablets prepared in 25 mg. size were used for oral administration.

Patients with acute thrombophebitis, pulmonary embolism, myocardial infarction, or other conditions requiring anticoagulant therapy were given initial dosage of 50 to 80 mg. of the drug either orally or intravenously after determination of prothrombin time was accomplished. Prothrombin determinations were made daily at 8 a. m. thereafter and the required maintenance dose of the drug estimated. With few exceptions, attempts were made to achieve constant levels within the therapeutic range by daily dosage with warfarin sodium after the peak effect of the initial dose had been reached. Prothrombin tests were performed on 100% plasma by the one-stage method of Quick[6] with use of thromboplastin (Simplastin), and results were reported both as prothrombin time in seconds and as a percentage of normal prothrombin. Control prothrombin times were usually 13 seconds and rarely 12 or 14, which were considered 100% of normal. Whenever hypoprothrombinemia became excessive or hemorrhage of gross or microscopic proportions occurred, menadione sodium bisulfite or phytonadione (Mephyton) was administered parenterally in a single dose.

RESULTS

I have treated 100 patients with warfarin sodium as shown in table 1. All of the patients were adults; age varied from 21 to 91 years. The series includes 42 cases of myocardial infarction, 12 cases of intermediate coronary syndrome (coronary insufficiency), 35 cases of acute thrombophlebitis, 7 cases of pulmonary embolism, 2 cases of congestive heart failure, and 2 cases of chronic auricular fibrillation preparatory to conversion to normal rhythm.

Initial Dosage.—The 21 patients given initial dosage of the drug by the intravenous route received a total of 23 injections (2 patients had two courses of anticoagulant therapy). Initial administration of 75 mg. proved adequate to produce therapeutic hypoprothrombinemia in 15 cases (83%) and was insufficient in 3 instances.

From the Cardiology Service, Fitzsimons Army Hospital, Denver.

Read before the first annual meeting of the American College of Angiology, Atlantic City, N. J., June 4, 1955.

The warfarin sodium used in this study was supplied as Coumadin sodium by Dr. Samuel M. Gordon, Endo Products, Inc., Richmond Hill, N. Y.

1. Ikawa, M.; Stahmann, M. A., and Link, K. P.: Studies on 4-Hydroxycoumarins: V. The Condensation of Alpha, Beta-Unsaturated Ketones with 4-Hydroxycoumarin, J. Am. Chem. Soc. **66**: 902-906 (June) 1944. Overman, R. S., and others: Studies on the Hemorrhagic Sweet Clover Disease: XIII. Anticoagulant Activity and Structure in the 4-Hydroxycoumarin Group, J. Biol. Chem. **153**: 5-24 (April) 1944. Seidman, M.; Robertson, D. N., and Link, K. P.: Studies on 4-Hydroxycoumarins: X. Acylation of 3-(α-Phenyl-β-Acetylethyl)-4-Hydroxycoumarin, J. Am. Chem. Soc. **72**: 5193-5195 (Nov.) 1950.
2. Shapiro, S.: (*a*) Warfarin Sodium Derivative (Coumadin Sodium): An Intravenous Hypoprothrombinemia-Inducing Agent, Angiology **4**: 380-390 (Aug.) 1953; (*b*) The Hypoprothrombinemia-Inducing Activity of Warfarin Sodium (Coumadin Sodium), J. Kansas M. Soc. **55**: 687-691 (Dec.) 1954.
3. Lange, P. F., and Terveer, J.: Warfarin Poisoning: Report of 14 Cases, U. S. Armed Forces M. J. **5**: 872-877 (June) 1954.
4. Wolff, J. M.; Barker, N. W.; Gifford, R. W., and Mann, F. D.: Experience with a New Intravenous Coumarin Anticoagulant (Warfarin, Sodium Derivative), Proc. Staff Meet., Mayo Clin. **28**: 489-497 (Sept. 9) 1953.
5. Clatanoff, D. V.; Triggs, P. O., and Meyer, O. O.: Clinical Experience with Coumarin Anticoagulants Warfarin and Warfarin Sodium, A. M. A. Arch. Int. Med. **94**: 213-220 (Aug.) 1954.
6. Quick, A. J.: The Clinical Application of the Hippuric Acid and the Prothrombin Tests, Am. J. Clin. Path. **10**: 222-233 (March) 1940.

In one patient an 80 mg. initial dose was effective. An initial dose of 50 mg. given in four cases proved insufficient in three. Warfarin sodium was given orally as the initial dose 81 times in 79 patients. A dose of 75 mg. proved adequate in 47 instances, was insufficient for optimal effect 15 times, and was excessive in 5 cases. A dose of 87.5 mg. was adequate the one time it was used. An initial dose of 50 mg. proved inadequate seven times, adequate five times, and excessive once. No direct correlation between body weight and size of initial dose was found.

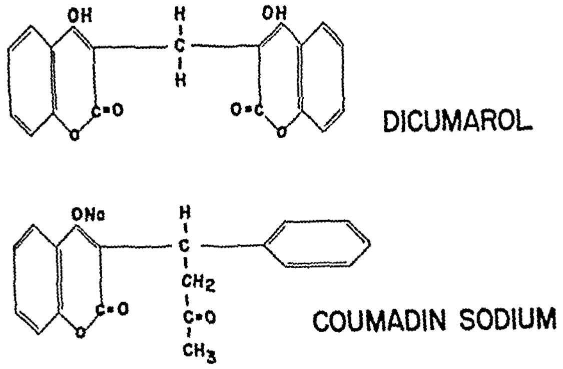


Fig. 1.—Structural relationship of warfarin (Coumadin) sodium to bishydroxycoumarin (Dicumarol).

Method of Administration of Warfarin (Coumadin) Sodium

Initial Dose	Maintenance	No. of Cases
Intravenous	Intravenous	13
Intravenous	Oral	8
Oral	Oral	79
		100

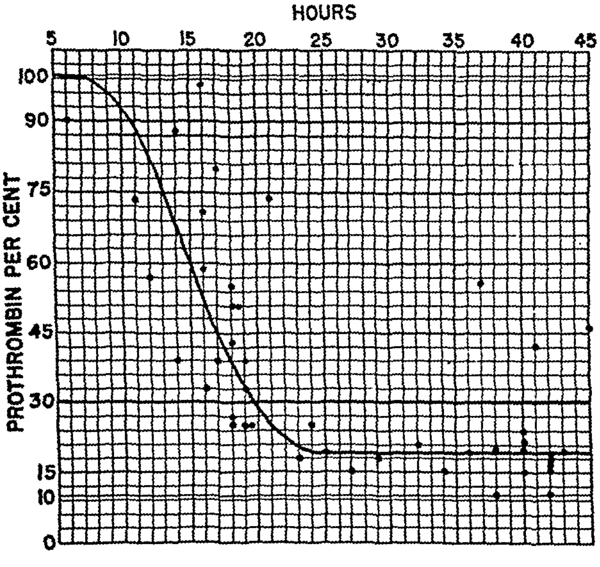


Fig. 2.—Hypoprothrombinemic effect of 75 mg. of warfarin sodium given intravenously in 18 cases.

Reduction in prothrombin levels to clinical anticoagulant effect (10 to 30% of normal) followed intravenous administration of the drug by an average of 21 hours and oral administration by an average of 24 hours (fig. 2 and 3). Somewhat greater variability is seen in response to oral medication, but, on the average, the effect of the same initial dose given orally instead of intravenously is to delay the response approximately three hours and to reach final levels of prothrombin percentage about 5% higher (25% of normal instead of 20% of normal) (fig. 4).

Duration of effect of a single (initial) dose could not often be determined from our records because of the interference of maintenance doses given before the full effect of the initial administration of the drug had been expended. Our records do show examples, however, of duration of therapeutic prothrombin levels for six days in 4 instances and for three to five days in 18 further cases (fig. 5).

Maintenance Dosage.—The average maintenance dose of warfarin sodium varied from 4 mg. to 19 mg. per day in individual cases, whether given intravenously or orally. The average maintenance dose for all patients was about 10 mg. per day (9.85 mg. for patients given maintenance therapy intravenously and 9.74 mg. per day for patients maintained with tablets for oral use). Again there was no direct correlation with the patients' weight, but the daily maintenance dosage in any one individual remained remarkably constant (fig. 6). Return of prothrombin time to normal (13 or 14 seconds) could be followed in 46 instances and occurred from one to three days (average two days) after the time of the last determination found within therapeutic range.

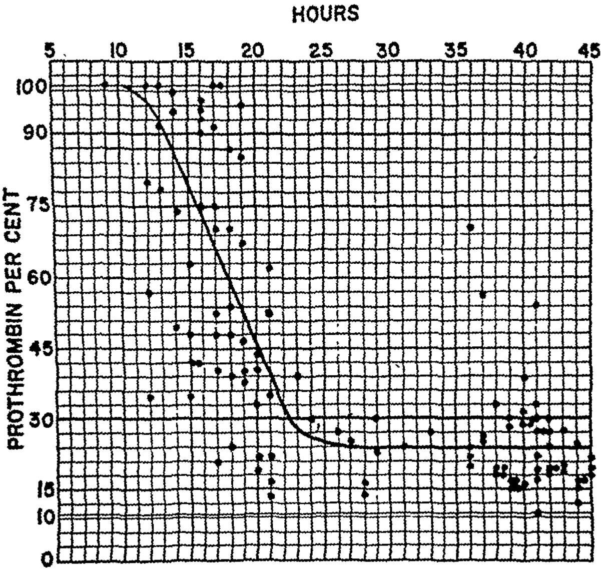


Fig. 3.—Hypoprothrombinemic effect of 75 mg. of warfarin sodium given orally in 60 cases.

Hemorrhage and Hypoprothrobinemia.—Evidence of gross or microscopic bleeding was encountered in eight cases. In three of these a hypoprothrombinemic cause appears remote. One individual subject to epistaxis experienced a brief period of minor bleeding from the nose while his prothrombin level was at 13% of normal. The bleeding stopped spontaneously without alteration of anticoagulant therapy and did not recur. A second patient treated for thrombophlebitis soon after a prostatectomy was performed suffered from some bleeding into the bladder while the prothrombin level was 16% of normal; bleeding stopped after evacuation of the clots and without use of vitamin K derivatives. In the third patient in this group petechiae formed over an area of swelling in the leg due to thrombophlebitis. The prothrombin level was at 19% of normal on this, the second day of anticoagulant therapy. Treatment was not altered, and no further hemorrhagic manifestations occurred.

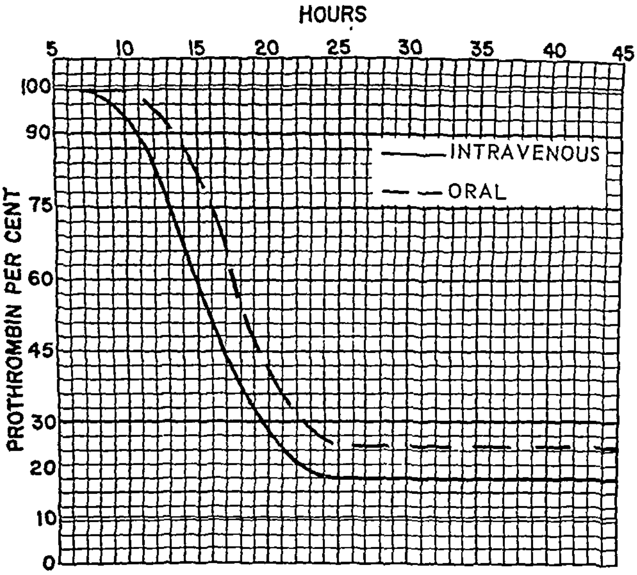


Fig. 4.—Comparison of hypoprothrombinemic action of single dose of warfarin sodium given intravenously and orally.

Hematuria occurred six times in five patients. In one case microscopic hematuria was noted on the 11th day of intravenous therapy with warfarin, with the prothrombin level at 18% of normal. The patient was given 50 mg. of phytonadione intravenously, with recovery in one day and elevation of prothrombin to 68%. In a second case microscopic hematuria appeared at a prothrombin level of 10.5% and cleared without the administration of vitamin K. In three cases (four episodes) excessive hypoprothrombinemia under oral therapy was present with prothrombin levels below 10% when gross hematuria occurred (prothrombin times were 47 seconds, 48 seconds, 44 seconds, and 44 seconds respectively). Intravenous administration of phytonadione in dosage of 10, 10, 5, and 5 mg. reduced prothrombin time to 15, 14, 14, and 13 seconds, respectively, by the following morning; this represents prothrombin percentages varying from 50 to 100%; hematuria disappeared.

Either vitamin K or phytonadione was used in five instances in which bleeding did not occur. In two of these menadione sodium bisulfite in 36 and 72 mg. doses given intramuscularly was used to counteract hypoprothrombinemia (7% and 9% of normal respectively); by the following morning prothrombin levels showed good return toward normal (16 and 56%). In one case phytonadione was administered when a rough pericardial friction rub developed in a patient with myocardial infarction. Phytonadione, 50 mg. introduced intravenously, elevated prothrombin from 13% to 100% of normal by the following morning. In two instances phytonadione was given to restore prothrombin levels in preparation for surgery. A 50 mg. dose given intravenously increased the prothrombin level from 22 and 17% to 100 and 53%, respectively, within 17 hours. Frequent prothrombin determinations were not made after the administration of the vitamin K products, so that the exact time of onset of their action was not delineated.

Hypoprothrombinemia (levels below 10% of normal) occurred 15 times in 10 cases without hemorrhage, and recovery to therapeutic levels was allowed to proceed spontaneously by withholding maintenance medication. These periods were of one day's duration or less in 11 instances, two days in 2 instances, and three days in 2 instances. Prothrombin times varied from 38.7 seconds to 75 seconds.

Clinical Data.—A total of 20,518 mg. of warfarin sodium was given to 100 patients over an average period of 15.8 days for an average daily dosage of 13 mg. and a total of 1,579 patient days of accumulated experience. No effect of warfarin sodium was seen during this study other than the production of hypoprothrombinemia. Four deaths occurred during treatment of this series of patients. Three were due to myocardial infarction: one through rupture of the heart, one in general collapse with gradual cessation of cardiac action, and one through apparent ventricular fibrillation. One death was due to rupture of a cerebral vessel. It does not appear that the anticoagulant therapy contributed to these deaths. In the remainder of cases anticoagulant action of the drug accomplished the desired therapeutic action well, with the development of no complications other than the cases of minor bleeding cited above. Pulmonary embolization was not observed in any of these patients while they were undergoing therapeutic hypoprothrombinemia.

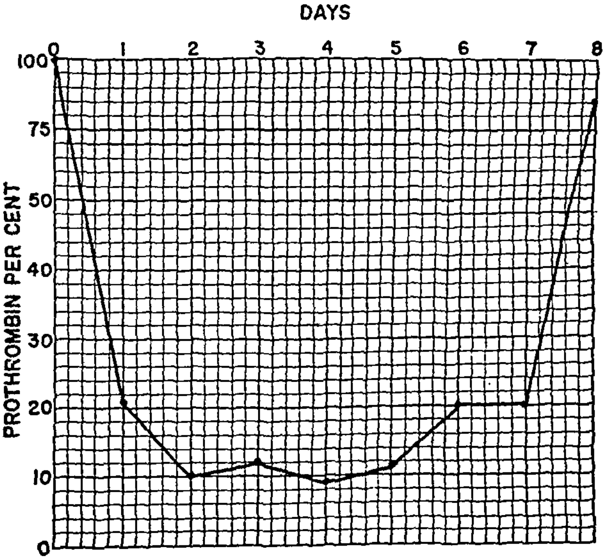


Fig. 5.—Response of patient to 75 mg. of warfarin sodium given orally.

COMMENT

Warfarin sodium is a rapidly acting anticoagulant drug producing therapeutic hypoprothrombinemia in approximately 21 hours when administered intravenously and 24 hours when administered orally. Absorption must be almost complete from the intestinal canal, since the response to doses given orally and intravenously is approximately the same, with a delay of about three hours in the onset and peak of action when the drug is given orally. Heparin may be used during induction of therapeutic hypoprothrombinemia, as was done in 28 cases, provided care is taken that blood for prothrombin determination is not drawn within four hours of the administration of heparin. Rarely will it be necessary to use heparin therapy for more than 24 hours when warfarin is administered as the primary anticoagulant.

Maintenance of smooth levels of hypoprothrombinemia proved to be relatively easy due to the prolonged action of the drug. In instances where the initial dosage of 75 mg. of warfarin sodium proved inadequate, supplementary dosage corrected the defect without difficulty. Administration of phytonadione restored prothrombin to safe levels and led to clinical cessation of bleeding in all instances in which it was attributable to hypoprothrombinemia. *In this connection it was noted* that small intravenously given doses of phytonadione (5 to 10 mg.) were effective in raising prothrombin levels and did not produce the resistance to further anticoagulant therapy commonly noted with larger doses (25 to 50 mg.). Individual variability of response to warfarin sodium, as with other anticoagulants, renders frequent determinations of prothrombin necessary. Although occasional levels of hypoprothrombinemia below 10% of normal may be tolerated, excessively low levels or long continuation of levels below 10% of normal lead to bleeding, manifested by microscopic or gross hematuria and perhaps other manifestations.

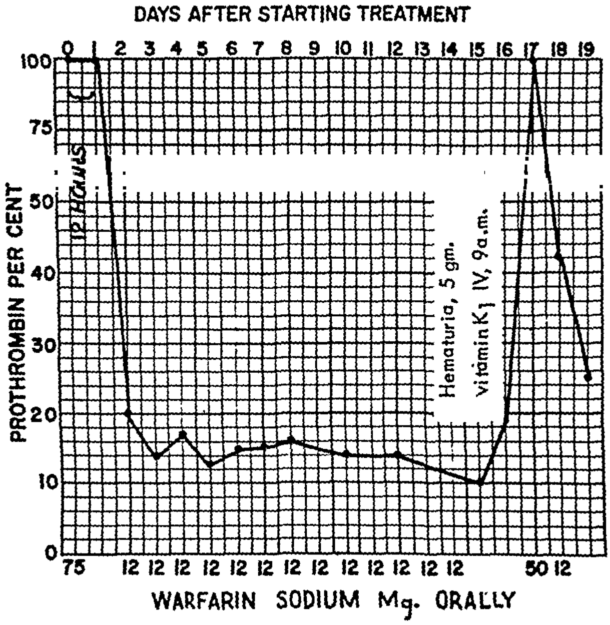


Fig. 6.—Prothrombin response to small dose of phytonadione (vitamin K_1).

My experience with warfarin sodium is parallel in most respects to that of Shapiro [3a] with regard to the intravenous use of the drug and with that of Clatanoff and his associates [5] in the use of the form for oral use. In my experience, warfarin sodium possesses properties that more nearly approach the ideal anticoagulant than the other drugs currently available: early anticoagulant effect, smoothness of maintenance, lack of side-reactions, and ease of restoration of prothrombin with phytonadione. The advantage of an agent that may be given either orally or intravenously depending upon the clinical situation is obvious.

SUMMARY

Warfarin (Coumadin) sodium, a 4-hydroxycoumarin drug, has been used as the hypoprothrombinemia agent in 100 clinical cases requiring anticoagulant therapy. This substance is soluble and active by intravenous and oral administration in approximately the same dosage. The initial dose was given intravenously in 21 cases, orally in 79. Maintenance dosage was given intravenously in 13 of the former group and orally in the remaining 87 cases. Therapeutic hypoprothrombinemia is induced in adults by an initial dose of approximately 75 mg. of the drug within an average of 21 to 24 hours, depending upon the route of administration. The maintenance dose by the continuous method, based on frequent (daily) prothrombin determinations, varied among patients from 4 to 19 mg., averaging about 10 mg. whether the drug was given orally or intravenously, and was consistent from day to day in the same patient. Prothrombin returned to normal levels after therapy with warfarin sodium was discontinued in an average of two days measured from the time of the last determination within therapeutic levels.

Hemorrhagic phenomena occurred in eight cases and were attributable to anticoagulant therapy in five of these cases (5%). They consisted of gross or microscopic hematuria, which cleared rapidly on administration of phytonadione. Menadione sodium bisulfite or phytonadione was administered in 10 instances for various reasons and invariably produced significant elevation of the prothrombin level. No side-effects (effects other than the induction of hypoprothrombinemia) were encountered. None of the four deaths that occurred in patients of the series were attributable to anticoagulant therapy; clinical estimate of the results of anticoagulant therapy was uniformly good. It is concluded that warfarin sodium possesses properties that make it more nearly an ideal anticoagulant than the other agents now available.

Cortisone in Treatment of Infectious Hepatitis.—Cortisone in both the oral and parenteral form appears of definite value in the treatment of hepatitis because: 1. It caused a more rapid clearing of jaundice, as measured by the average icterus index and serum bilirubin levels, than occurred in the controls. 2. It caused a more rapid return of the appetite than occurred in the controls. 3. It caused the patients treated with it to consume more food than did the controls. 4. It caused a greater gain in weight than occurred in the controls. 5. The bromsulphalein tests in the cortisone-treated patients on the average returned to normal faster than they did in the controls. 6. The patients treated with cortisone got well faster than did the controls. Because of these six findings we feel that cortisone is of definite value in the treatment of hepatitis. We do not recommend the use of so potent a drug as routine therapy for hepatitis, but we feel that it should be of great value in those cases of hepatitis which do not respond to conventional treatment.—Lieut. Col. T. E. Huber and Capt. A. T. Wiley, (MC), U. S. Army: Cortisone in the Treatment of Infectious Hepatitis, *Annals of Internal Medicine,* May, 1955.

STUDIES WITH GLUCAGON IN PATIENTS WITH INSULIN SENSITIVITY

John G. Alivisatos, M.D.
and
E. Perry McCullagh, M.D., Cleveland

The regulatory mechanisms that come into play in response to a sharp decline of the blood sugar concentration, restoring its equilibrium (hypoglycemia responsiveness), and the impairment of these mechanisms in spontaneous hypoglycemia or induced hypoglycemia (hypoglycemia unresponsiveness) are not clearly understood. However, it has been established that the responsiveness of certain organs or systems seems to be of primary importance in such homeostasis. These are (1) the sympathico-medullo-adrenal system, (2) the anterior pituitary and the adrenal cortex, and (3) the glycogenolytic responsiveness of the liver.

Hypoglycemia responsiveness has been investigated in man and experimental animal, by studying insulin sensitivity, in the sense of measuring the rate of decline of the glucose content in the blood after a given test dose of insulin. A number of methods have been designed for the study of the kinetics of blood sugar elimination from the blood stream, and modifications of these have appeared in the literature during recent years. The "assimilation index," which was introduced as early as 1929 by Norgaard and Thaysen,[1] was calculated from the decline of the blood sugar level during an insulin tolerance test. Himsworth [2] devised the glucose-insulin tolerance test, which he applied in classifying diabetic patients into insulin-sensitive and insulin-insensitive. In 1941, Fraser, Albright, and Smith [3] used three types of tolerance tests for the study of impaired carbohydrate metabolism in endocrinopathies, and a modified test was described later by Engel and Scott [4] for the detection of hypoglycemia unresponsiveness in pituitary and adrenal insufficiency. By applying modified techniques there has been an attempt to give a mathematical expression to the rate of fall of the glucose concentration in the blood stream, and such figures are given in expressing the rate of decline, or the disappearance rate of glucose, or the glucose assimilation coefficient.[5] All these tests study the decline phase of the tolerance curves and they are, with certain limitations, of diagnostic value, but they do not furnish any further information concerning which of the homeostatic mechanisms mentioned may be impaired.

Glucagon, the hyperglycemic factor of the pancreas has been shown from in vivo and in vitro experiments to produce hyperglycemia by stimulating selectively hepatic glycogenolysis. The promptness of this effect and its failure to produce any side-effects make it a valuable tool for the study of certain aspects of hypoglycemia responsiveness. Pincus [6] found an increased hyperglycemic response to glucagon in patients with unstable diabetes, but a decreased response was obtained in similar patients by Kirtley and others.[7] Their conflicting results could be explained by the different "basal conditions" used and the different preparations administered. Kibler and Myers [8] have used the responsiveness to glucagon as a test of liver function; they found a better correlation of this method in severe liver disease as compared to the liver function tests usually applied. Hubble [9] and others have found no response to glucagon in patients with von Gierke's disease. The present study was undertaken to explore further the possibility of applying glucagon as a diagnostic tool in patients with insulin sensitivity and to accumulate information about the importance of hepatic glycogen reserves in the regulatory homeostatic mechanisms during hypoglycemia.

MATERIAL AND METHODS

Nine adult subjects of both sexes were selected as normal controls: two were normal individuals and seven were hospitalized orthopedic patients. These patients were in the latter part of the third postoperative week recovering from intervertebral disk surgery. They were all in good health, none were diabetic as judged by normal postprandial blood sugar, and all were well nourished on a high-caloric, high-carbohydrate diet. In a few cases a high-carbohydrate preparatory diet, as recommended by Conn,[10] was introduced three days prior to the experiment. If any drugs were being used they were withdrawn 24 hours prior to the experiment.

Fifteen adult diabetic patients of both sexes (more than 25 years of age) were divided into two groups: *six patients with stable diabetes and nine patients with* "brittle" diabetes, according to a classification that is based on a percentage expression of the blood sugar values for each patient. This classification has been presented in another study.[11] Patients with stable diabetes were selected as controls for patients with brittle diabetes. All diabetic patients studied had been followed for a number of years at the department of endocrinology at the Cleveland Clinic and were under treatment with insulin and controlled diet. All six patients with stable diabetes were under good control. The nine patients with brittle diabetes showed the usual fluctuations in their blood sugar values. Attempts were made to obtain a normal fasting blood sugar value by observing these patients a number of days prior to the experiment and modifying their insulin requirements accordingly. Experiments were not done in patients who had had an insulin reaction during the previous 24 hours.

A few patients with miscellaneous conditions, presenting hypoglycemia unresponsiveness, diagnosed clinically and on the basis of repeated low blood sugar values,

---

From the Cleveland Clinic Foundation and the Frank E. Bunts Educational Institute. Dr. Alivisatos is now at the Athens Polyclinic, Department of Endocrinology, Athens, Greece.

This study was supported in part by a research grant from the Cleveland Diabetes Foundation.

Because of space limitations the bibliographic references have been omitted from THE JOURNAL and will appear in the authors' reprints.

The glucagon used in this study was supplied by Dr. W. R. Kirtley and Eli Lilly & Company, Indianapolis.

were studied. Four patients with adrenal cortical hypofunction (Addison's disease) were included in this group. The diagnosis in each case was based on the classical history and the physical and the laboratory findings. The experiments on patients with adrenal cortical hypofunction were performed three days after withdrawal of steroid treatment, and the only therapy given was sodium chloride. During this period the patients were on a high-caloric, high-carbohydrate diet and their weight was maintained. One patient with an islet cell tumor was studied preoperatively. The diagnosis in this case was confirmed at surgery.

Two patients with functional hypoglycemia were studied. For three days preceding the experiments these individuals were given a high-carbohydrate preparatory diet. Two patients with total pancreatectomy and one with subtotal pancreatectomy (two-thirds resection) performed for cancer of the pancreas were investigated. These patients showed blood sugar fluctuations similar to those seen in patients with brittle diabetes and occasionally had insulin reactions. At the time of the experiments they had no diarrhea, maintained their weight, the liver was not palpable, and there was no clinical evidence of metastasis. One diabetic patient with hemochromatosis also was investigated.

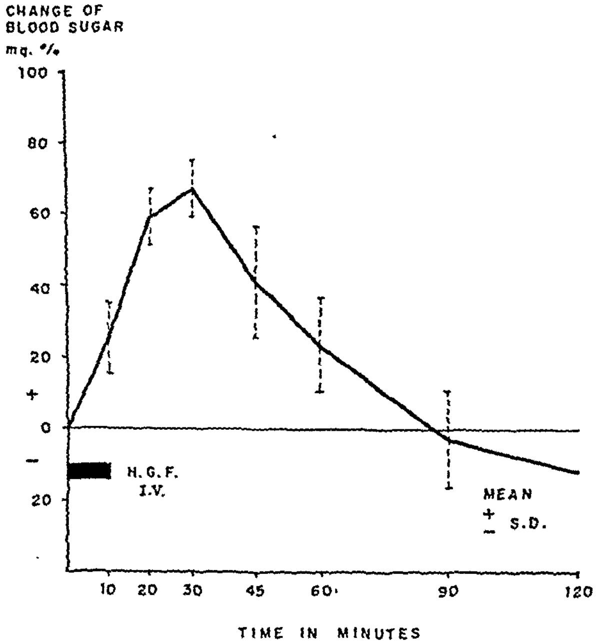


Fig. 1.—Response to glucagon in nine normal controls. H.G.F.= glucagon.

Most patients were admitted to the hospital for these studies for a period of five to seven days, while a few were ambulatory except for the days of the experiment. On day 1, diabetic patients received their usual morning dose of insulin with which they had been controlled. No insulin was administered after that time, and no food was given after 6 p. m. of that day. On day 2, no food was given and diabetic patients received no insulin. The nonhospitalized patients were permitted to rest for a two hour period prior to the experiment. All experiments were performed at rest 16 to 17 hours postprandially and were started between 10 and 11 a. m. of day 2. At zero time (day 2), venous blood was withdrawn and immediately after 0.6 mg. of glucagon was administered intravenously in 50 cc. of isotonic sodium chloride solution within 10 minutes. The same dose was used in all experiments. Venous blood was withdrawn at 10 minute intervals for the first half hour, every 15 minutes the second half hour, and in half-hour intervals for the next hour. At the end of two hours the experiment was terminated and the patients received their noon meals; their diabetes was controlled with two doses of regular insulin for the rest of the day. Day 3 was a rest period.

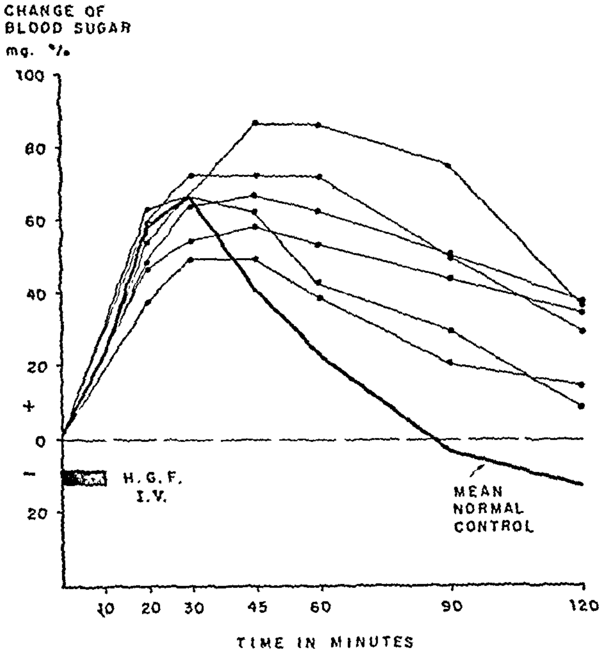


Fig. 2.—Response to glucagon in six patients with stable diabetes.

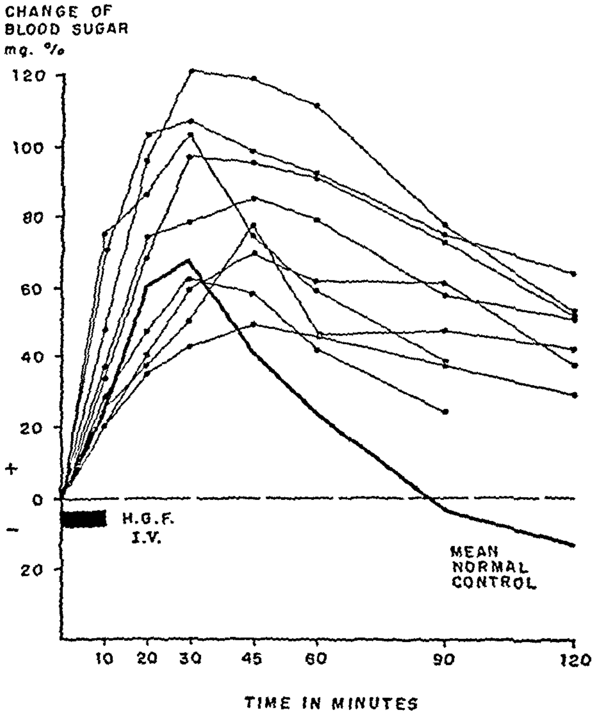


Fig. 3.—Response to glucagon in nine patients with "brittle" diabetes.

Diabetic patients received their usual diet and morning dose of insulin as on day 1. On day 4, the same procedure was repeated on the same patient with the addition of 15 units of regular insulin given subcutaneously three hours (at 7 or 8 a. m.) prior to the infusion of glucagon. The same period of fasting was used as in day 2 in each experiment. In a small number of the normal controls and Addisonian patients, three hours prior to the second glucagon test, 25 mg. of corticotropin (ACTH) intramuscularly was administered.

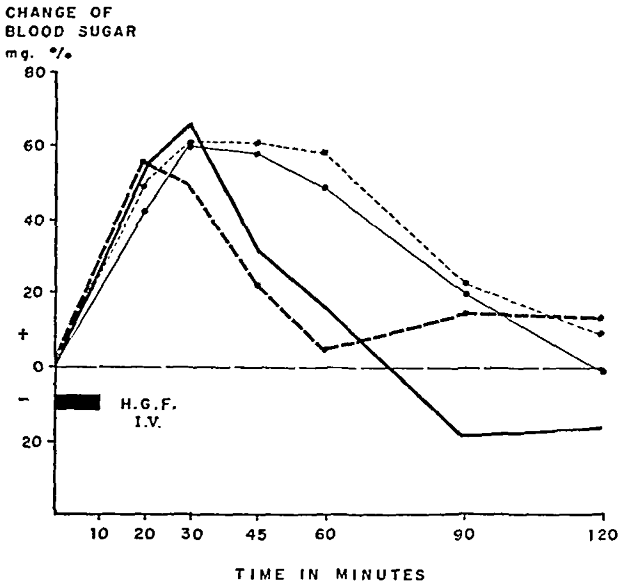


Fig. 4.—Response to glucagon in two normal controls. The two upper curves are from one patient (before glucagon indicated by solid light line, and after glucagon indicated by broken light line). The two lower curves are from the second patient (before glucagon indicated by solid heavy line, and after glucagon indicated by broken heavy line).

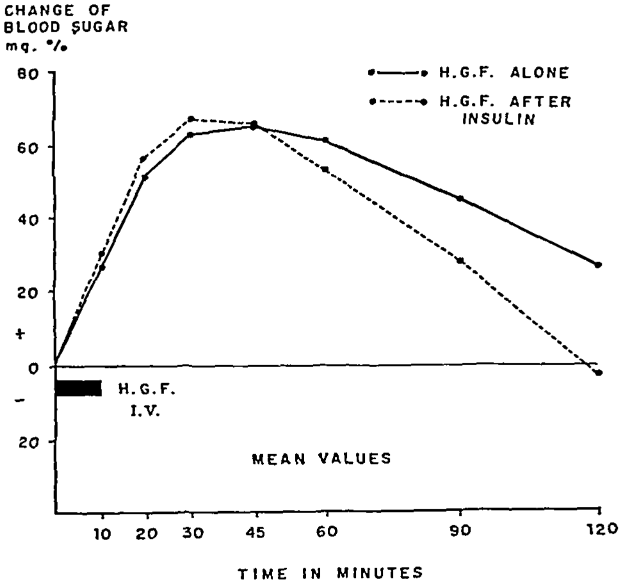


Fig. 5.—Response to glucagon in six patients with stable diabetes.

In two patients with adrenal cortical hypofunction a third glucagon test was performed a few months after the original experiments. These studies were done two hours after 50 mg. of hydrocortisone had been administered by mouth. Blood specimens were analyzed for glucose by the method of Somogyi and Nelson.[12] Total blood ketone bodies and, in a small number of studies, ultracentrifugal patterns of lipoproteins were determined.

RESULTS

Figure 1 demonstrates the mean blood sugar curve (± *standard deviation* [S. D.]) obtained in response to an intravenous injection of glucagon in nine normal controls. The maximum rise was obtained in 30 minutes after the start of the infusion. The mean maximum increase above the initial zero value was 66.4 mg. per 100 cc. (S. D. ±7.9). At the end of 90 minutes blood sugar values had returned to normal or slightly below normal. No subject in this group experienced any hypoglycemic reaction during the second hour after the infusion.

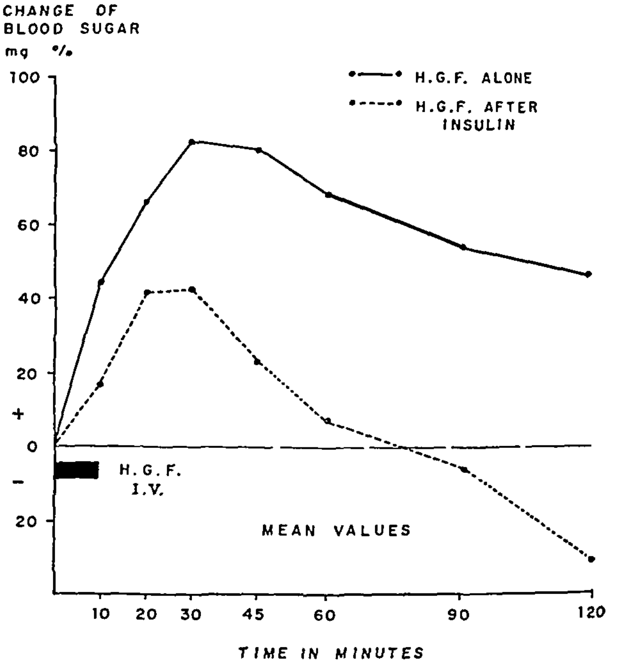


Fig. 6.—Response to glucagon in nine patients with brittle diabetes.

Figure 2 records the hyperglycemic responses of six patients with stable diabetes. The darker line indicates the mean value in normal controls. The mean response was 62.5 mg. per 100 cc. in 30 minutes and the mean maximum response 65.2 mg. per 100 cc. in 45 minutes. One patient in this group gave a maximum response of 87 mg. per 100 cc. at 45 and 60 minutes, but that of all others fell in the range of the maximum response of normal controls. In all six patients differences occurred in the specimens taken at 60, 90, and 120 minutes as compared to the normal controls. At the end of two hours all patients with stable diabetes had blood sugar values above control level.

Figure 3 shows the response curves obtained in nine patients with brittle diabetes. The mean maximum response was 82.1 mg. per 100 cc. in 30 minutes. Two patients showed maximum response in 45 minutes. All patients with brittle diabetes, with one exception, gave hyperglycemic responses above the mean of normal controls and patients with stable diabetes. Some patients with brittle diabetes gave a hyperglycemic response in the range from 97 to 121 mg. per 100 cc. No relationship was observed between the level of the zero time blood sugar value and the magnitude of the hyperglycemic response. Figures 4, 5, and 6 record the hyperglycemic responses to glucagon when given alone, as compared to the responses when glucagon was given three hours after the administration of 15 units of regular insulin intramuscularly. In figure 4 the findings in two normal subjects are presented, and in figure 5 the mean values of six patients with stable diabetes are plotted. In normal controls and in patients with stable diabetes the hyperglycemic effect of glucagon was essentially the same when given alone or when given after insulin. Figure 6 shows the results of the same experiment in patients with brittle diabetes. In the latter the difference between the two responses is marked. In table 1 the blood sugar changes from zero time level are given in milligrams per 100 cc. for the two groups of diabetic patients when glucagon was administered alone (A) and after insulin (I). In a separate column (A-I) the difference between the two values obtained in each patient is given.

TABLE 1.—*Change in Blood Sugar Level in Response to Glucagon in Patients with Stable and Brittle Diabetes*

	Time, Min.																				
	10			20			30			45			60			90			120		
Patient	A*	I†	A-I‡	A	I	A-I	A	I	A-I	A	I	A-I	A	I	A-I	A	I	A-I	A	I	A-I
Stable																					
1...........	....	+31	....	+54	+69	+15	+66	+65	− 1	+63	+48	−15	+43	+36	− 7	+30	+19	−11	+ 9	....	...
2...........	+24	+25	+ 1	+49	+56	+ 7	+64	+61	− 3	+68	+62	− 6	+63	....	....	+51	+25	−26	+30	....	....
3...........	....	....	....	+38	+44	+ 6	+50	+59	+ 9	+49	+51	+ 2	+39	+38	− 1	+21	+21	0	+15	+ 9	− 6
4...........	....	....	....	+48	+41	− 7	+55	+56	+ 1	+59	+67	+ 8	....	+58	....	....	+ 1	....	+35	−22	−57
5...........	....	....	....	+59	+61	+ 2	+73	+80	+ 7	....	+82	....	+73	+61	−12	+50	+48	− 2	+39	+35	− 4
6...........	....	....	....	+63	+68	+ 5	+67	+85	+18	+87	+88	+ 1	+87	+82	− 5	+76	+59	−17	+37	+15	−22
Brittle																					
1...........	....	....	....	+41	+37	− 4	+59	+32	−27	+69	+21	−48	+61	+ 1	−60	+61	−19	−80	+37	−41	−78
2...........	....	+28	....	+68	+31	−37	+97	+52	−45	+95	+29	−66	+90	+27	−63	+72	+ 8	−64	+62	....	....
3...........	+25	+18	− 7	+47	....	....	+62	+21	−41	+58	+ 6	−52	+42	−15	−57	+24	−44	−68	....	....	....
4...........	+26	+15	−11	+37	+30	− 7	+50	+21	−29	+77	+12	−65	+46	− 3	−49	+47	−29	−76	+42	−40	−82
5...........	+20	+ 1.5	−18.5	+35	+28	− 7	+43	+33	−10	+49	+ 6	−43	+46	....	....	+37	−24	−61	+29	−36	−65
6...........	....	....	....	+74	+44	−30	+97	+31	−66	+85	+ 3	−82	+79	−13	−92	+57	−21	−78	+46	−22	−68
7...........	+70	+25	−45	+103	+47	−56	+107	+52	−55	+98	+34	−64	+92	+22	−70	+74	+ 2	−72	+64	....	....
8...........	....	....	....	+95	+64	−31	+121	+80	−41	+119	+53	−66	+111	+29	−82	+77	+ 1	−76	+46	....	...

* A = Changes in blood sugar level (mg. per 100 cc.) when glucagon was administered alone.
† I = Changes in blood sugar level (mg. per 100 cc.) when glucagon was administered after insulin.
‡ A-I = Difference between values of A and I.

A few patients with brittle diabetes showed early signs of hypoglycemic reactions (weakness, confusion, sleepiness, lag period in answering direct questions) at the end of three hours after the administration of 15 units of insulin and before the infusion of glucagon. One patient had an acute severe hypoglycemic reaction with convulsions one and a half hours after the insulin was administered. Glucagon was immediately given, and a few minutes later the patient recovered and was able to take some orange juice orally. The experiment on this patient was discontinued. All patients with brittle diabetes had moderate insulin reactions at the end of 90 to 120 minutes after glucagon was administered, and in four patients the experiment had to be discontinued before withdrawing the last specimen.

Figure 7 records the changes obtained in four patients with adrenal cortical hypofunction. In all cases the response was below the mean maximum change obtained in normal controls. All patients had early signs of hypoglycemic reactions after 90 or 120 minutes. In three normal controls the differences of responses were compared when glucagon was administered alone and when it was given three hours after a single dose of 25 mg. of corticotropin intramuscularly. In these experiments one normal subject showed an increase of 31 mg. per 100 cc. in 30 minutes above the response obtained when glucagon was given alone and 38 mg. per 100 cc. in 45 minutes. The other two normal subjects gave essentially the same changes with and without corticotropin. No significant differences in the hyperglycemic response were obtained in two patients with adrenal cortical hypofunction when glucagon was given alone and when it was given three hours after a single dose of 25 mg. of corticotropin or two hours after 50 mg. of hydrocortisone by mouth. In all cases after the administration of corticotropin or hydrocortisone, the zero time values were 10 to 15 mg. per 100 cc. higher than those of the control experiments (glucagon alone) and the responses occurred in higher levels, but the magnitude of change

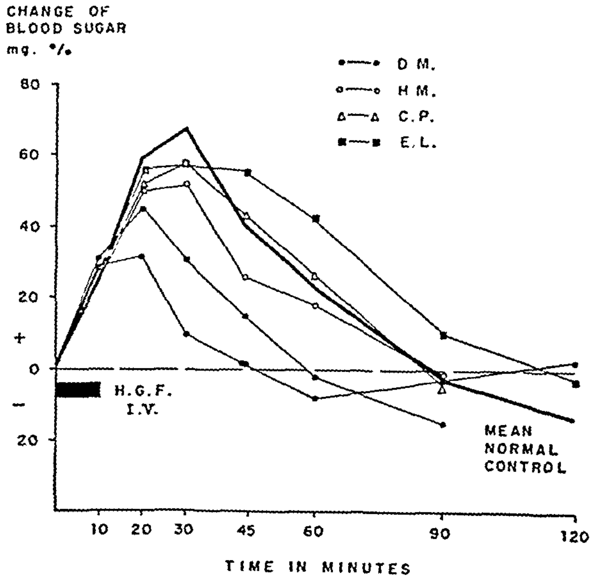


Fig. 7.—Response to glucagon in four patients with Addison's disease.

was of the same range. Figure 8 shows the responses of one patient with an islet cell tumor and two patients with functional hypoglycemia. The patient with the tumor fasted for only nine hours. Her fasting blood sugar level was 40 mg. per 100 cc. Twenty minutes after glucagon, it had increased 52 mg. per 100 cc. above the initial blood sugar value. After this peak there was a steep decline. The sugar value at 30 minutes was below the response obtained in 20 minutes. At the end of one hour her blood sugar values had returned to the zero time level and the patients showed mild hypoglycemic symptoms. The patients with functional hypoglycemia showed a decreased response to glucagon and gradual decline to preinfusion levels and did not experience any signs of hypoglycemic reactions.

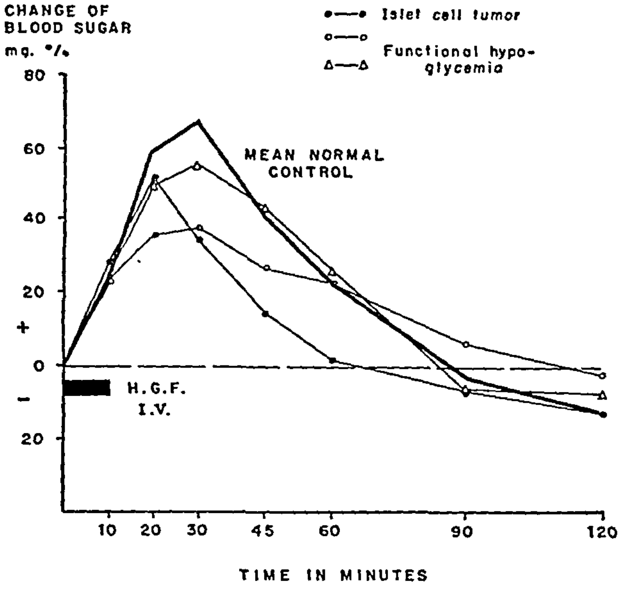


Fig. 8.—Response to glucagon in patients with islet cell tumor and functional hypoglycemia.

Figure 9 shows the response to glucagon when it was infused three hours after the administration of 15 units of regular insulin to a group of patients known to be insulin-sensitive. In two of these patients total pancreatectomy had been done, in one subtotal pancreatectomy, and one had hemochromatosis. The patients in whom pancreatectomy had been done gave changes in the 20 and 30 minute specimens of the range of 76 to 84 mg. per 100 cc. One had decreased response to glucagon after insulin but not of the amount usually seen in patients with brittle diabetes. The patient with hemochromatosis had moderate response to glucagon.

COMMENT

Hyperglycemic Response in Normal Subjects.—The hyperglycemic response that was obtained in normal subjects for the dose of glucagon administered for 10 minutes is in close agreement with the response obtained by others[7] when a similar dose was infused for an interval of 30 minutes. Apparently, prolonging the infusion period does not increase the responsiveness to glucagon, as shown by the work of Van Itallie and others,[13] who obtained a fall in blood sugar values during a one hour continuous infusion of glucagon.

In the normal subjects studied the maximum hyperglycemic response was obtained 30 minutes after the infusion was started. This is similar to the findings of Kirtley and others.[7] Five of 10 subjects studied by Van Itallie,[13] receiving different glucagon doses that were given in different infusion times, showed a maximum response in 30 minutes. The importance of a preparatory diet for patients undergoing a glucose tolerance test has been emphasized in the past. One would expect on theoretical grounds that this should be true and possibly even more important for patients undergoing a test with glucagon, as it has been suggested that the height of the glucose response can be related to the amount of liver glycogen available. Pincus and Rutman[14] were unable to obtain a response to glucagon after a 96 hour fast in the experimental animal. We were unable to detect any change in the blood sugar values after glucagon administration in one of our patients who had fasted for 49 hours.

Hyperglycemic Response in Patients with Brittle Diabetes.—An increased hyperglycemic response was obtained in patients with brittle diabetes as compared to the effect in normal subjects or patients with stable diabetes. These results are not in agreement with the concept given by others[7] that patients with brittle diabetes possibly have poor glycogen stores. Furthermore, Bearn and others[15] found that in an insulin-sensitive diabetic patient, an aspiration liver biopsy specimen showed qualitatively normal glycogen content. Hildes and others[16] have shown quantitatively normal liver-glycogen in similar patients. On the basis of our results and the work of others mentioned, it would seem that liver-glycogen stores in patients with brittle diabetes are not depleted.

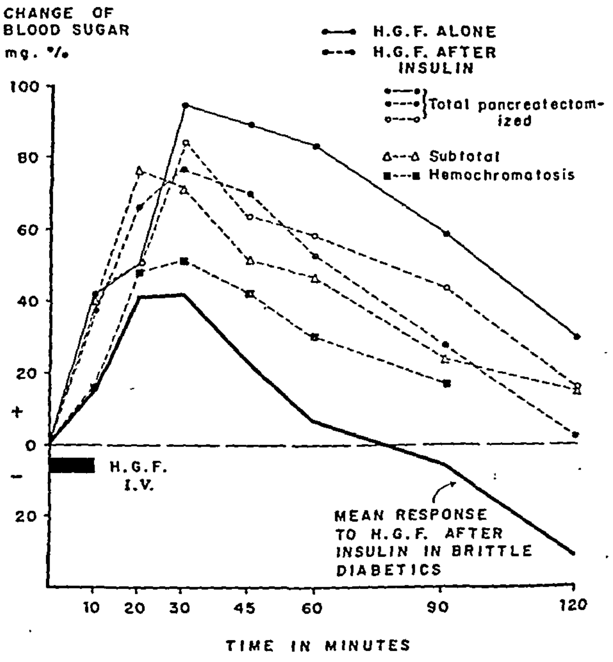


Fig. 9.—Response to glucagon in patients in whom pancreatectomy had been done and patient with hemochromatosis.

Since differences in response to glucagon were found in patients with brittle diabetes as compared to those with stable diabetes and normal controls, and since it has been shown by the glucose-insulin tolerance test[2] that different response patterns to insulin are present in these two diabetic groups, study of the insulin-glucagon relationship in these patients appeared to be warranted. It was of particular interest for us to note that the increased hyperglycemic response to glucagon in patients with brittle diabetes was reversed in the same patients studied when glucagon was infused three hours after a small dose of insulin. Such a difference in response with and without insulin was not obtained in patients with stable diabetes or normal subjects. The planimeter readings were calculated (table 2) from the response curves by applying the method used by Himsworth and Kerr.[17] These are obtained by measuring with a planimeter the area of the curves up to 45 minutes. The area enclosed by the curve obtained after glucagon administration will be called the glucagon area (G area). The area enclosed when glucagon is administered after insulin, the glucagon-insulin area (G+I area), and the area enclosed between the G area and G+I area, which represents the action on insulin, will be called the insulin area (I area). The mean difference of the G area and G+I area was found to be 0.1 for patients with stable diabetes and 0.97 for those with brittle diabetes. The mean G/(G+I) ratio is 0.94 for patients with stable diabetes and 2.32 for those with brittle diabetes.

The unresponsiveness to glucagon after insulin in patients with brittle diabetes might be attributed to: (1) an antagonistic action of insulin to glucagon, (2) decreased liver-glycogen stores, (3) decreased glucose outpouring by the liver, or (4) increased peripheral glucose utilization. In vivo[18] and in vitro[19] experiments indicate that glucagon is an antagonist to insulin, but there is not general agreement on this point.[20] If one assumes that such an antagonistic action does exist for the doses of insulin and glucagon used (which when expressed in units is of the order 1:100 respectively), it is hard to understand why this does not hold true in patients with normal or stable diabetes. Since the dose of glucagon used is the same and the ability of the patient with brittle diabetes to respond to such a dose is present, one might conclude that the action of insulin per unit of glucagon has increased. The response curves to glucagon obtained in persons with brittle diabetes after insulin and in patients with islet cell tumor are quite similar. In the patient with the islet cell tumor, an excess of insulin is known to be present. Since this is not true for the patient with brittle diabetes, we believe that the similarity of the curves supports the idea of increased insulin responsiveness in patients with brittle diabetes.

The second explanation, that the decreased response to glucagon after insulin in persons with brittle diabetes is due to low liver-glycogen stores, seems unlikely on the basis of the increased hyperglycemic response obtained in the same patients after glucagon was given alone. It is possible, however, that increased peripheral utilization of glucose following insulin might decrease liver stores sufficiently to modify the response. In respect to the third possibility, Bearn and others,[15] by using the hepatic vein catheterization technique, showed that in patients with brittle diabetes the administration of insulin (0.1 unit per kilogram of body weight intravenously) resulted in a greater fall in the hepatic glucose output than that found in persons with stable diabetes or in normal subjects, which could explain the lack of response to glucagon in these patients. Evidence for the fourth possibility has been given by Himsworth,[21] who compared peripheral arteriovenous differences in the two types of diabetics during a glucose-insulin tolerance test. A significant increase of the arteriovenous differences in insulin-sensitive diabetic patients was demonstrated, indicating an increase in peripheral glucose utilization. Boller and Uiberrak[22] administered 100 gm. of glucose when hypoglycemic symptoms appeared, usually one and one-half to two and one-half hours after a large dose of insulin. In the insulin-sensitive diabetics, the orally given glucose resulted in a smaller hyperglycemic rise than in the insulin-insensitive group. These results could be explained on the basis of increased peripheral glucose utilization. In normal subjects a close correlation has been shown between the diminution of hepatic glucose output and increased peripheral utilization of glucose after insulin; thus it seems that both functions proceed at the same rate.[23] From these studies and others reported in the literature, it seems reasonable to postulate that in patients with brittle diabetes, insulin comes into action forcefully increasing peripheral glucose utilization and decreasing the glucose output of the liver.

TABLE 2.—*Planimeter Readings of Response Curves to Glucagon in Patients with Stable and Brittle Diabetes*

Patient	Glucagon Area, G	Glucagon Insulin Area, G+I	Difference	Ratio, G/(G+I)
Stable				
1	1.6	1.8	+0.2	0.88
2	1.7	1.6	−0.1	1.06
3	1.2	1.4	+0.2	0.85
4	1.4	1.3	−0.1	1.07
5	1.8	1.9	+0.1	0.94
6	1.9	2.2	+0.3	0.86
Brittle				
1	1.4	0.9	−0.5	1.55
2	2.3	1.0	−1.3	2.3
3	1.5	0.6	−0.9	2.5
4	1.4	0.7	−0.7	2.0
5	1.1	0.7	−0.5	1.57
6	2.3	0.9	−1.4	2.55
7	2.8	1.3	−1.5	2.15
8	2.9	1.9	−1.0	1.52

Which is the responsible mechanism for such an increased action of insulin is not clearly understood. There is no evidence at present that these patients have increased insulin sensitivity due to impaired pituitary or adrenal function. The insulin sensitivity in patients with adrenal failure has been postulated to be the result of poor glycogen stores.[4] If the insulin sensitivity of patients with brittle diabetes is due to impaired adrenal function, then a similar response to glucagon would be expected in both conditions. As this was not the case, we doubt if the adrenal gland is responsible in the insulin sensitivity of patients with brittle diabetes.

Himsworth,[21] from work done in the early 1930's, postulated that the action of insulin is conditioned by an unknown factor that makes the body sensitive to exogenous or endogenous insulin. This "sensitizing factor," when in excess, increases the rate of decline of glucose per unit of insulin. This hypothesis possibly can be supported by the work of Mirsky [24] on insulinase and insulinase inhibitor, which may explain the mechanism of insulin sensitivity in patients with brittle diabetes.

Hyperglycemic Response in Patients with Other Metabolic Disorders.—Further experiments were done in patients with other metabolic diseases known to be insulin sensitive, in order to study the responses to glucagon in these conditions and to determine whether the mechanism of insulin sensitivity is the same or different in these patients. Four patients with adrenal cortical hypofunction showed decreased responsiveness to glucagon. Since cortisone in the experimental animal increases liver-glycogen and corticotropin stimulates the adrenal glands, increasing the output of glucocorticoids, it was of interest to study the effect of corticotropin and cortisone on the responsiveness to glucagon in normal subjects and to compare the effect to that found in patients with adrenal cortical hypofunction. The experiment was outlined in the most simple manner in order to evaluate the possibility of its use as a clinical test for glucocorticoid production. In three normal subjects the responses to glucagon three hours after corticotropin were compared and only one subject showed a significant increase in response after corticotropin. Two patients with adrenal cortical hypofunction to whom corticotropin or hydrocortisone was administered in separate experiments did not show any consistent and significant differences from their control experiments. There was a slight increase in their preinfusion blood sugar values in all experiments. This is in close agreement with early work [25] in normal subjects, three of whom received 100 mg. of hydrocortisone intravenously for six hours while one received 40 mg. of corticotropin intravenously for 30 minutes. The results for the hydrocortisone experiments are compared to the results after a control infusion of 5% dextrose and 1% alcohol administered in the same subjects.

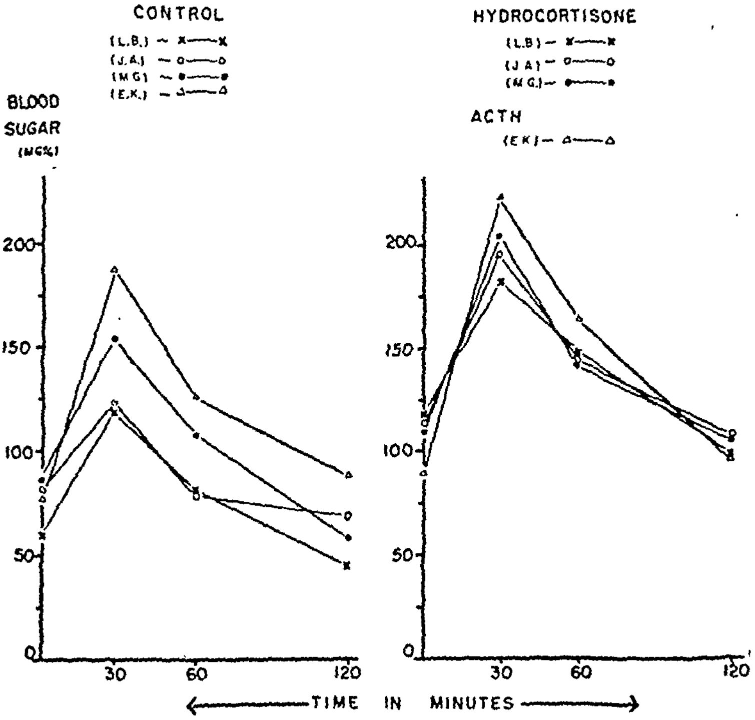


Fig. 10.—Results of glucose tolerance test in control patients and those given hydrocortisone or corticotropin (ACTH).

In figure 10 the results are given of glucose tolerance tests performed at the end of the six-hour control, after the hydrocortisone or corticotropin infusion had been started. The differences are more apparent during the glucose tolerance tests than in the fasting levels. Further work with other batches of corticotropin and other routes of administration is intended in order to elucidate the possibility of applying such a test as a diagnostic procedure. Engel and Scott [4] found no change in the response to an insulin-glucose tolerance test in patients with adrenal cortical hypofunction and panhypopituitarism when the test was repeated after a short interval of treatment with adrenal cortical extract.

At the time the present study was in progress there was a report by Helmer and Root,[26] who were studying the same problem in short-term experiments in animals. They found that long-acting corticotropin enhanced the hyperglycemic response to glucagon but cortisone did not have such an effect. Kerppola [27] found that epinephrine did not produce a greater rise in blood glucose levels in rabbits after cortisone. In longer term experiments De Boda and Altszuler [28] have shown that the administration of hydrocortisone to dogs in which hypophysectomy has been done not only raises the postabsorptive blood sugar level but also antagonizes the action of administered insulin.

Our experiments support further the hypothesis of Engel and Scott,[4] that an important factor in hypoglycemia unresponsiveness in patients with adrenal cortical hypofunction is the lack of adequate supply of liver-glycogen. The ability of these steroids to increase in a short interval of time the fasting blood sugar values, and to impair somewhat the glucose tolerance curve without increasing the responsiveness to glucagon, does show that their action in decreasing peripheral glucose use is rapid, compared to the increase of liver-glycogen reserves, and may be important in hypoglycemia responsiveness.

Two patients with functional hypoglycemia gave decreased responses to glucagon, and the decline of the blood sugar values to the preinfusion levels was not as rapid as that seen in a patient with islet cell tumor. The patients in whom pancreatectomy had been done and the diabetic patient with hemochromatosis known to be insulin-sensitive did not respond to glucagon after insulin administration, as patients with brittle diabetes did. This would imply that the mechanism of their insulin sensitivity may be different from that seen in patients with brittle diabetes. This is substantiated by the work of Volk and others,[29] who found by studying directly the insulin sensitivity of dogs in which pancreatectomy had been done that the rate of decline of the blood sugar level was similar to that found in normal dogs. Furthermore, Foa [30] has shown that the rise in the blood sugar level after glucagon is much greater in the dog in which pancreatectomy has been done whose condition is controlled with insulin than in the normal animal. Out of the three patients in whom pancreatectomy had been done, two showed a greater rise with glucagon after insulin compared to their response when glucagon alone was given.

Glucagon in Patients with Insulin Sensitivity.—In the small group of patients with insulin sensitivity studied up to now, the diminished maximum response to glucagon when applied under standard conditions has been a consistent finding. Patients with adrenal cortical hypofunction, islet cell tumor, and brittle diabetes showed mild hypoglycemic reactions between one and one-half to two hours after glucagon was administered; these did not occur in two patients with functional hypoglycemia. Larger groups of patients have to be studied in order to evaluate the consistency of these findings. Blood speciniens taken at zero time, at 30, and at 90 minutes possibly may suffice in evaluating the response to glucagon. This procedure seems to be simpler and safer than the insulin tolerance tests or their modifications

SUMMARY

The intravenous administration of a standard dose of glucagon was used as a test to study the hyperglycemic response of normal subjects and patients with various metabolic diseases who were known to be insulin-sensitive. In patients with brittle diabetes who were given glucagon, there was a distinctly greater rise in blood sugar levels than found in normal persons or patients with stable diabetes. In the same patients with brittle diabetes, when glucagon was given after a dose of insulin, there was comparatively little increase in the blood sugar level. In patients with stable diabetes and in normal subjects, on the other hand, glucagon given after insulin produced almost the same response as when glucagon was administered alone. In patients in whom diabetes developed after pancreatectomy, who were known to be insulin-sensitive, the response to glucagon given after insulin was not similar to that seen in patients with brittle diabetes or stable diabetes. In these two patients the rise in the blood sugar level was distinctly higher after glucagon following insulin than after the same procedure in brittle diabetes. In patients with adrenal cortical hypofunction (Addison's disease), islet cell tumor, or functional hypoglycemia, there was a smaller blood sugar rise in response to glucagon than in normal subjects. Pretreatment of normal or Addisonian patients with cortisone or corticotropin (ACTH) for a short interval did not influence their response to glucagon in most cases. From the small group of patients studied up to now, the application of the glucagon tolerance test seems a safe and practical procedure under standard conditions, and we believe that it could be valuable for the detection of insulin sensitivity in patients with hypoglycemia unresponsiveness, especially when an insulin tolerance test would be dangerous.

2020 E. 93rd St. (6) (Dr. McCullagh).

EPIDEMIOLOGY IN OCCUPATIONAL MEDICINE

John J. Phair, M.D., Cincinnati

A number of subjects suitable for this occasion were carefully considered and discarded before the final decision was reached to call attention to and to plead for recognition of the place and value of epidemiology in the field of occupational medicine. As a newcomer to the latter specialty who has served a long apprenticeship in the former discipline, the choice seems natural. At the same time, a limited experience with industrial problems ruled out any review or presentation of personal investigations for illustrations of its value to the average industrial physician and forced a general philosophical approach. Also, a naïve novice can easily be in error when he believes he has a greater awareness of the many and diverse opportunities to employ epidemiological techniques in the solution of industry's health problems, but, at the moment, it appears to be worth the chance.

Many may ask what is meant by the term "epidemiology," and where will it fit into the practice of occupational medicine? Knowledge of the cause and dynamics of any disease process is required for the determination of the importance of various factors, such as the host, agent, and environmental conditions, and for any estimation of the effectiveness of different control procedures. This background is assembled generally from three principal sources. The first of these is the detailed systematic clinical records of each of the syndromes as they occur in individuals presenting either apparent or inapparent reactions. The second is the study of the etiological agent, whatever it may be, either a living organism, its products, or a toxic material under experimental conditions in the laboratory. The third is the utilization of observations and analyses of the specific conditions associated with the occcurrence of the disease and the causative agent in nature, or "epidemiological research."

EPIDEMIOLOGICAL METHOD

There is no desire to convey the impression that this approach has not been explored and utilized in the past in the solution of industrial problems. Many classic examples come quickly to mind. The mercury poisoning of felt makers, the scrotal cancers of mule spinners, the skin cancers of shale-oil workers, and similar investigations indicate the wide variety of such efforts found in medical literature; however, interest in the use of the epidemiological method in studying not only occupational but infectious diseases declined with the development of the apparently more direct and concrete experimental techniques. Yet some of the very fundamental relationships to be taken into account in the formulation of control procedures are not even revealed, much less explained, by these methods. They can be elucidated and

---

Professor of Preventive Medicine, Department of Preventive Medicine and Industrial Health, College of Medicine, University of Cincinnati.

Chairman's address, read before the Section on Preventive and Industrial Medicine and Public Health at the 104th Annual Meeting of the American Medical Association, Atlantic City, June 9, 1955.

understood only by the systematic investigation of the various syndromes as they occur in nature, that is by the epidemiological method—not attempting to supplant but rather to supplement and confirm the results obtained under the obviously artificial conditions required in the laboratory.

Three decades ago, during the formative aspects of organized educational efforts in public health, Frost[1] recognized that workers in preventive medicine were obliged to understand and use epidemiological methods systematically in order to plan and guide their administrative practices effectively. In a plea for support of "epidemiological research" by public health agencies, Frost emphasized the point that they dared not shirk this task. Because of their access to epidemiological data, these groups have a very special opportunity and responsibility for the development of such knowledge and the very science itself. Only in this way could public health agencies be expected and prepared to: (1) meet community demands for the diagnosis and control of endemic and epidemic disease, (2) make intelligent compilations and interpretations of records too often considered solely and primarily administrative, (3) extend knowledge beyond the bounds of clinical and experimental medicine, and (4) take as their ultimate objective the prevention of all kinds of disease.

INDUSTRY'S RESPONSIBILITY FOR RESEARCH

The central theme of this presentation is to indicate that industry and its medical departments must accept the same responsibility for epidemiological research on similar grounds. Again, there is the unusually easy access to detailed epidemiological data, the routine compilation of administrative records, and the growing recognition that the practice of occupational medicine can only be appraised and guided by such analyses. Also, there is now general acceptance by the medical profession that the goal of occupational medicine is primarily preventive rather than therapeutic. There is also a unique opportunity in industry to advance the specific knowledge of the effect of diverse toxic materials on man under widely varying and yet relatively well controlled conditions of exposure. The industrial population of today is made up of groups subject for a definite period of time to hazards that can be defined with reasonable accuracy. In this respect, this ability to describe "exposure" gives the investigator of occupational problems a tremendous advantage over the student of infectious disease. Furthermore, the composition of the population subject to risk can be far more readily described with greater preciseness in respect to many important variables such as race, sex, and chronological and industrial ages.

On the other hand, the reasons for an immediate and unqualified acceptance of responsibility for fundamental and extensive investigations in this field multiply and become more urgent day by day. New processes, new compounds, and new applications are developed continuously. These create intramural problems not only for industry but for the outside environment as well, both near and far. For example, the safe and practical disposal of wastes, liquid and air-borne, has become a complex and serious question. The widespread use of pesticides introduces other complications. It is now evident that industrial hazards have spread far beyond the confines of the plant, and industry is compelled to consider the impact on the community as a whole. This involves not only acute reactions but also the possibility of long-range changes. All this adds up to the inevitable demand for additional epidemiological research.

DEFINITION

What is included in "epidemiology?" Correctly defined, it is "the sum of human knowledge of epidemic diseases." It is true the content has drifted far from this meaning in modern usage. The application is no longer restricted solely to epidemics or even to the endemic incidence of infectious disease. On the other hand, the term as actually applied does not imply that this science or art represents essentially a specific limited body of medical knowledge as, for example, is found in other disciplines such as pathology, pharmacology, and bacteriology. The most proper definition is: "that branch of medical science which deals with the characteristics, etiology, and mode of transmission of diseases as indicated by the circumstances and conditions of their occurrence in nature." Corresponding to this interpretation, the epidemiology of a disease is: "the characteristics of that disease with respect to the conditions and circumstances of its occurrence in nature."

Although originally concerned solely with the explanation of the cause of epidemics, the term "epidemiology" of necessity had to become more inclusive. An epidemic is customarily described as an unusual increase in incidence or in the actual occurrence of disease. To explain epidemics, or even long-time trends, it is essential to understand the factors and the relationships that determine the usual levels of prevalence and characteristic distribution of diseases in the population. The term can also be broadened and applied essentially to similar studies of acute diseases in animal and plant populations.

RELATION TO OTHER FIELDS

The successful use of this approach in the solution of infectious disease problems has been followed by its extension to other health fields. It is recognized now that epidemiological techniques can be adapted with profit to the study of chronic diseases, acute toxic problems, nutritional deficiencies, accidents, and mental disease. These methods also have proved invaluable in assaying the effect of preventive procedures such as mass immunization, chemoprophylaxis, dust control, and similar protective efforts. How and in what ways is epidemiology related to other aspects of medical science? Any complete understanding of a disease process, its nature, etiology, relative importance, and control requires information from four aspects. The first necessity is a knowledge of the reaction of the individual. This is the contribution essentially of clinical medicine and pathology. Second is a knowledge of the pattern of occurrence in the population. This includes a description of the frequency and distribution of cases or deaths in various groups and is obtained through the routine

---

[1] Frost, W. H.: The Importance of Epidemiology as a Function of Health Departments, M. Officer 29: 113-114 (March 10) 1923.

compilation of records. Third is a knowledge of the specific causative agent and its behavior under controlled conditions. This includes its biology, if it is a living organism, or its chemistry, if it is some inorganic or organic compound. This is the province of the experimental laboratory, either of microbiology or toxicology. Fourth is a knowledge of the significant relations between the occurrence of disease in nature and the complex, almost innumerable conditions—intrinsic, environmental, and occasionally special—that affect not only individuals but different segments of the population. It is at this point that epidemiology comes into its own, and this is the justification for considering it as a special discipline of medical science.

Epidemiology depends, therefore, upon clinical medicine for the recognition of disease, upon the experimental laboratories of pathology, microbiology, and toxicology for the evaluation of certain significant biological factors, and upon vital statistics for the description of the pattern of occurrence in the community. It is essentially the connecting link, assembling and employing the observations from each of these fields, first for analysis and subsequently for interpretation. It is likewise better to look upon it as essentially an inductive science concerned not merely with describing the occurrence and distribution of disease but equally or more involved with fitting the observed pattern into a consistent practical philosophy.

CHARACTERISTICS AND FUNCTION

It will be worthwhile at this point to review briefly how this is usually accomplished. Generally, the epidemiological characteristics of clinical reactions resulting from industry or community exposures to toxic materials, as with infectious diseases, are as difficult to enumerate and classify as their symptoms and usually have been much less well thought out. Some of the essential ones, expressed in simple rather than scientific terms are: the area of occurrence, the manner of occurrence, and the selection in relation to simple variables as race, sex, age, and environmental factors. These can be summed up simply as "when," "where," and "in whom." Much more complex and diversified are the specific characteristics. Some of these are: the relationship of individual exposure, and the relationship of personal habits, nutrition, economic status, previous illnesses, physical defects, and like variables.

However, as indicated earlier, the function of epidemiology lies not in the simple enumeration but rather in the reasonable, logical interpretation of both categories of characteristics. To do this, if the industrial physician is to take advantage of the application of epidemiological methods in his particular situation, the requisites are: (1) knowledge of the essential facts and principles of experimental pathology (etiology, toxicology, microbiology), (2) at least an elementary knowledge of the use of quantitative methods in biological studies, and (3) knowledge and experience in clinical medicine and diagnosis.

It must be acknowledged that significant contributions can and have been made by a clinician with no great knowledge of the statistical method and by a good statistician with but a limited knowledge of clinical medicine or toxicology. Generally, it is essential and desirable that the skills as listed be readily available and accessible. Also, the epidemiologist must acquire, both by training and experience, a frame of reference related to those facts that he is handling for orientation and comparison. He must acquire a technique, not entirely as a routine but rather as a uniform method of collecting and analyzing his observations, based upon definite principles, such as a clinician employs in his study of a patient. In other words, he must develop the habit of thought, the philosophy, and the pattern of approach that are necessary to comprehend the problem, to plan the collection of additional material, and to interpret the data.

CAUSATION AND CONTROL OF DISEASE

For the analyses, there are certain basic principles in epidemiology as in the other branches of medical science. To illustrate, two conditions are essential in the causation of disease, namely: exposure, that is to say effective contact between the specific agent and the host; and susceptibility on the part of the host. Prevention lies in controlling one or both of these factors. Satisfactory control is rarely obtained by a specific prophylactic procedure in dealing with an industrial problem but is generally achieved by modifying the environment or the habits of the workers; hence the requirement to know as accurately as possible the importance of various relationships in the actual environment to the occurrence of disease. The appearance of a case is tangible proof that the essential conditions of exposure and susceptibility have been fulfilled. Nonoccurrence in another worker may be due to: lesser or no exposure; lesser susceptibility, specific or structural; or chance, such as accident of lodgment or the physical characteristics of the material. These factors are indeterminate in the individual and are subject to all degrees of variation. Between two individuals, the investigator can draw no conclusions as to their relative exposure or susceptibility, since there is no workable basis for comparison. He is forced to accept the fact that causes apparently equal need not produce the same effect.

If adequate-sized groups of individuals are considered, the situation is quite different. Significantly different incidence rates in the two samples will indicate a noteworthy difference in exposure, susceptibility, or both; hence, the first fundamental principle is that of comparison of the incidence rates of disease in groups, known as selection. In general, a direct comparison is the simplest and most readily understood expression of association. Certain precautions are essential in any application of this principle to epidemiological data: 1. The variables should have some presumptive relationship to the incidence of the clinical reaction. 2. The assumption that the groups are otherwise similar must be justified by collateral information. 3. The observed differences must be statistically significant. The second cardinal principle is that of composite proof. The underlying concept is that the probability of two independent events occurring at the same time is the product of their separate probabilities. This method is instinctively applied in reasoning without mathematical knowledge and frequently is applied to events that are beyond mathematical expression. It is involved in the validity of circumstantial evidence in general. The application in epidemiology is in testing and excluding various hypotheses rather than proving any specific one. These principles are of general and universal application and are capable of infinite combinations. They can be utilized to explain causation of a simple epidemic of food poisoning or to explain the etiology of cases arising from long exposure to complex materials.

NEED FOR MORE COMPLEX STUDIES

A final question may be raised as to what additional information can be gained by developing and applying epidemiological methods in industrial medicine. Accurate, relatively simple observations have proved to be one of the strongest assets of preventive medicine in its efforts to control infectious disease. For example, it has been found comparatively easy to win support for the protection of water, food, and milk supplies, for vaccination against smallpox, and for diphtheria immunization because it has been possible to present convincing evidence of the efficacy of such measures. Similar studies in the field of industrial medicine, particularly in dealing with plant exposures to toxic materials, have proved equally valuable.

However, health workers long ago realized far more complex studies must be undertaken to answer such queries as: "What effect does isolation of a recognized case of infectious disease have upon the total incidence in the community?" or, turning from morbidity to mortality, "What proportion of deaths from a given disease could be prevented by improved health education or better hospital facilities?" The variables to be considered for the solution of such problems obviously are far too complex for any experimental laboratory. Similarly, industry and the industrial physician are confronted by questions of equal complexity and difficulty. For example: "What is the maximum permissible exposure to a toxic material, not in any etiological relation to an acute reaction but as a possible cause of disease, 10, 15, or 20 years later?" or "What will be the effect of measures designed to limit exposure to a given material, either in degree or kind?"

The present lack of uniformity and the all too frequent halfhearted manner in which recommendations for the control of occupational hazards are received is sufficient proof that this additional knowledge is needed. It can be admitted that a more complete understanding might not be encouraging or even occasionally resisted, since it may point to the desirability of abandoning some of the more cherished practices of certain industries. From the other side, it should be apparent, even to the most skeptical, that this insight would stimulate the formulation of new defense procedures and finally lead to a more effective administration of control activities. Again, it must be emphasized that such information can hardly be secured entirely by experimental toxicological investigations or by more elaborate analyses of the necessarily simple data drawn from crude mortality and morbidity statistics. Acceptable solutions can be found only by making detailed, organized studies of the circumstances and conditions under which cases and deaths actually occur in nature and by recording, analyzing, and comparing disease incidence, taking into account all of the pertinent variables. This is particularly true when the industrial physician is concerned with the possible hazards of years of exposure to low levels of concentration.

NEED FOR NEW METHODS AND TECHNIQUES

As noted in the introduction of this presentation, industrial medicine offers innumerable opportunities to utilize the basic principles of epidemiology not only for the solution of specific problems but to make notable contributions to the knowledge of man's reaction to pathogenic materials in his environment. New methods will have to be developed and old techniques modified. Among the greatest needs in this field are methods that can be readily employed in the elucidation of the relationships between the occurrence of human disease and chronic exposures, either in the plant or the community, for example, to small amounts of possibly noxious materials, regardless of the vehicle, be it air, food, or water. The unfortunate situation confronting the investigator is that the few techniques that have been proposed for the study of chronic infectious diseases have never been completely evolved or perfected. It is more than likely, therefore, that provision for additional training of specialized investigators for this field will be required not only in schools of public health but also in institutions primarily concerned with the techniques and procedures of industrial hazards. Additional facilities and support may have to be found.

SUMMARY AND CONCLUSIONS

In summation, the stimulation and participation in this type of medical research must be considered and accepted as a unique and peculiar function of the industrial physician because: (1) such investigations approach the problems of industry and now the community from precisely the angle of the most direct interest to him; and (2) he and his department have a virtual monopoly on the facilities and records required for systematic studies in this field. There is no great need to organize or support a specially qualified group of workers. In the modern medical departments found in industry today, mechanisms have been perfected for the prompt notification of cases, for periodic examinations of the workers, and for control of the working environment. Very frequently, this supervision can be extended into the home. This ability to control the conditions found in any given situation is almost unparalleled except in military or penal establishments. It must be recognized that a plant population can be followed even more closely than school children, the traditional subjects of the public health worker. Furthermore, through the routine checkups, individuals without disease can be studied as carefully as those presenting clinical symptoms, something always sought but rarely achieved in epidemiological research in the general community. Independent institutions, academic and otherwise, cannot provide this machinery and staff on any comparable scale. Governmental agencies such as health departments, with limited budgets and faced with the fear of regulation on the part of industry, have likewise no real opportunity to work in this field and frequently are denied access to it. The individually interested physicians, at one time leaders in epidemiological investigations of infectious disease, are completely shut out.

To measure up to this responsibility and to take advantage of this unrivaled opportunity to make significant contributions to the science of medicine, the industrial physician needs only to recognize that undertaking such investigations is an essential part of his activities. Next, some definite specific problem suitable to the situation and facilities should be selected, and, with this in view, the routine procedures, records, and tests can be organized in a fashion to permit the easy assembling of concrete information bearing directly upon the problem. Finally, it will be necessary to methodically compile these data and to make the answers available to others. The proof that an active, interested industrial physician and his staff have the necessary resources for fruitful studies of which any research organization might well be proud has been repeatedly demonstrated. Many of the simpler questions, those that require less rigidly controlled observations, have been answered. Those that remain may require a somewhat greater effort, but there are many questions that may be readily solved simply by more effective exploitation of their opportunities by industrial medical teams.

THE CIVILIAN DOCTOR AND OUR FUTURE SECURITY

Isidor S. Ravdin, M.D., Philadelphia

I am grateful to the members of this section for having honored me with the Chairmanship during this session of the American Medical Association. The splendid attendance at this meeting is ample assurance that the Medical Military Section of this Association is on a sound footing. If such a section had been organized and functioning 40 years ago, civilian medicine and military medicine would perhaps have reached sound understanding many years ago. The problems that concern civilian doctors and their counterparts in military life are many and varied. The experiences of the last decade have demonstrated that they are often not easily solved to the complete satisfaction of both groups. There seems, at the present moment, to be no way to achieve the necessary goals without prolonged discussion, which, at times, leads only to the multiplication of differences of opinion. Many of the present opposing concepts are without clear meaning, and many of the arguments are poorly conceived, perhaps even selfish in their origin. Yet, by one means or another, a meeting of minds must be achieved. Agreement on many matters is not only highly desirable but, in the present state of world affairs, vitally essential, if we are to command respect from our people and if democracy is to survive in the areas in which it now functions.

MANPOWER REQUIREMENTS OF MEDICAL MILITARY SERVICES

A few weeks ago I received a letter from one of my residents who is now on duty with our forces in Germany. Although he has had several years of residency training in surgery, he is now not so assigned. In his letter he said, "Though I have said it before, I want you to know that whatever my assignment is to be, I will do the best I can. The government allowed me to finish my internship and some of my residency. I wasn't taken during the Korean War. I am here and have my wife with me. Of course, I would like to do surgery—but I know I owe the government and the Army more than they owe me. A brief glimpse of these European countries makes it very clear that two years of service is a small price to pay for being an American citizen."

It cannot be doubted but that this young man has a high respect for our democratic institutions. The importance of this type of approach to obligatory military service should be obvious to everyone who treasures our way of life, and yet many men, young and old, fail to understand it. Some of the present difficulty lies in the disinclination to trust the statements that have been made by one group or another. Unless concerted action is taken to achieve unity of opinion, the position of medicine as a whole in our country may be jeopardized, and the public may well question the motives of the leaders of civilian and military medicine.

There exists an actual distrust of the requested manpower requirements of our medical military services. There are some who have come to a fixed opinion that the medical services of our armed forces are already greatly overstaffed; that medical personnel is too frequently poorly assigned, not because of necessity, but because of faulty administration; that the medical care in the armed forces could be better met by a unified medical service; and that the dependent care problem has been created in order that more civilian physicians and dentists be forced to active duty.

We must, in the shortest possible period of time, reach sound decisions on these matters. We must carefully and unselfishly scrutinize them and come to agreement on what is important for adequate medical care for our military forces and their actual dependents and, at the same time, what is essential for adequate civilian medical care. Only by taking a broad and unbiased view of the over-all situation can a solution be reached that will be equitable to all concerned. We must find an appropriate balance for these controversial matters. We cannot achieve this by one group preaching to the other. We cannot achieve the unity we need by political action. We will achieve it only by a meeting of minds and by a sympathetic understanding of the complicated problems that concern civilian and military medicine. The solution will be achieved more easily if all agree that everyone concerned has a high regard for our democratic processes and all are equally interested in the preservation of our national integrity.

Chairman's address, read before the Section on Military Medicine at the 104th Annual Meeting of the American Medical Association, Atlantic City, June 7, 1955.

It cannot be possible, as some have intimated, that doctors have lost so much of their social consciousness that they fail to realize that, if freedom is to live, physicians, who represent an important segment of those with disciplined minds, must assume leadership much more broadly than they have in the past. We must demonstrate to a greater degree than ever before that, while we have acquired certain skills during training and practice, we have maintained and strengthened the important qualities of citizenship in a democracy. Elliott Dunlap Smith of the Carnegie Institute of Technology stated a few years ago, "Our complex and far-flung democracy is a democracy of men who work. Unlike the democracies of the past, it has no leisure class which is its governing class. If its inherent freedom is to survive, its keenest and most disciplined minds—and by and large this means its professional men—must devote their moral energies and their intellectual powers to become leaders in solving its problems." One of the basic points in this important statement, to my mind, is the implication of voluntary leadership, and an unwillingness to be exploited does not in any way mean an unwillingness to assume leadership.

"DOCTOR-DRAFT" ACT

The House Armed Services Committee is now considering an extension of the "Doctor-Draft" act. Quoting the American Medical Association Washington Letter of April 29, 1955, "The American Medical Association has registered with the House Armed Services Committee its opposition to a two year extension of the Doctor Draft Act, scheduled to expire next June 30." There are those who find themselves in agreement with the Trustees of the American Medical Association. Some of the members of the Health Resources Committee of the Office of Defense Mobilization have also stated that an extension of the "Doctor-Draft" act at this time is unnecessary. On the other hand, the Secretary of Defense of the United States and the Assistant Secretary of Defense (Health and Medical) believe that adequate and necessary medical service cannot be provided our troops unless the act is extended. All of those vitally concerned with this problem are men of integrity. All of them have had the same data upon which to base their opinions. In spite of this, they have not been able to come to a uniform decision and to appear before the Congress and defend a unified concept. In the final analysis, the decision should be made on the basis of our national interest and security. Private interests should not be considered. I say private interests to include the civilian physician on the one hand and the military physician on the other. The democratic impulses of either group will not be strengthened if undemocratic motives are used by one side or the other.

I am sure that the decision of the Trustees of the American Medical Association and certain members of the Health Resources Committee were not made in their self-interest. They would not capriciously jeopardize our national security, and yet equally honorable men who are spending a part of their lives in government believe that it is of major importance that the act be continued. We must assume that all of those concerned in this matter are equally concerned with strengthening the integrity of our democracy, and yet we must face the fact that there exists a sharp difference of opinion between those representing civilian medicine and those representing military medicine. The continued strengthening of American medicine will not be achieved without careful consideration of our complete responsibility in public service. Carl H. Appleby in a somewhat similar situation gave the following admonition: "In this pursuit there must be care not to confuse one's professional viewpoint, functional preoccupation, or personal prejudices with the public interest."

This nation has always been proud of the type of medical service that has been provided our military forces. Today, as never before in the history of our country, our troops are to be found throughout the world. The Army and the Air Force are dispersed over a large part of the earth's surface. Our Navy will be found over the seven seas. For the troops of these supporting and defending services, doctors must be provided. A large segment of these forces are individuals who have been drafted from civilian life. The majority do not seek a career in the military forces. They must be provided adequate medical service, and this must be achieved within our democratic processes. I am sure that all of us agree that there cannot justifiably be two standards of medical service—one for those in civilian life and one for those who, because of desire or because of necessity, serve in the armed forces for variable periods of time.

The letter that I read from the young resident who is now serving in Europe exemplifies, I am sure, the patriotic spirit of the great majority of our young graduates. The polemic that now faces American medicine in this matter cannot be resolved merely by insisting that physicians be brought into the services through the regular draft act and not through special legislation. One of the codes of ethics of the American Medical Association might well be repeated here, "A profession has for its prime object the service it can render to humanity; reward or financial gain should be a subordinate consideration." Later it states that the principles laid down for the guidance of the profession "are primarily for the good of the public." Accepting the fact that the medical profession has for its prime object the service it can render to humanity, we must also accept the fact that this Association has in the past been able to adjust the particular interests of its members to the common interest of the nation. It is of primary importance that our concept of service not be muddied by a momentary bias, for such an approach by either group is unhealthy for our national security. Everyone concerned is agreed that civilian physicians must, as long as our democratic processes are threatened, assist in the medical care of the troop strength authorized by our government.

CIVILIAN DEFENSE PROGRAM

I am concerned by another matter that involves our national security equally as much as does that which I have been discussing. I refer to the civilian defense program and the part that doctors are playing in it. It has been said by many who have looked into the matter that, should we again become engaged in war and should modern methods of destruction be utilized, our civilian population would suffer as much, or more, in the form of major injuries as would our military population. Between our military forces and our civilian population, we may well encounter casualties in numbers previously undreamed of. Civilian defense is being planned on a relatively local basis, and yet, should we become involved in a major conflict, the doctors of many of our communities will suffer as many casualties as will the cross section of the community. How, then, can they be expected to provide the medical support that will be needed under such circumstances? We shall have to be prepared to transport doctors representing all facets of medical training from distant sites to provide medical care for those whose communities have met a devastating attack.

We shall, in all likelihood, have to supply also medical and surgical supplies in undreamed of amounts. We shall have to supply nurses and orderlies and all of the other supporting framework that goes with our concept of modern medical and surgical care. We shall have to supply blood and plasma substitutes in unparalleled amounts. We shall have to have people trained to administer these substances. Here lies a field of service so urgent and so great that our national safety may well rest on the manner in which it is carried out and the speed with which such care is expedited. We must ask ourselves whether we shall continue to go on living in a fool's paradise or whether we will face this important problem seriously and begin to plan for supported action on the broadest possible basis.

It is the opinion of many who know something about these matters that our civil defense program will fall far short of the exigencies of the situation and that the only way in which the matter can be expedited adequately will be by some type of military control. Can this be better achieved by those who have never had military training or by those who have had a background in the authority and discipline that military training encompasses?

Civilian medicine must actively concern itself with this great problem. It must think as Plato thought when he said, "But that we shall be better and braver and less helpless if we think that we ought to enquire than we should have been if we indulged in the idle fancy that there was no knowledge and no use of seeking to know what we do not know—that is the theme upon which I am ready to fight, in word and deed, to the utmost of my power." We cannot think of the possible catastrophic destruction without realizing that our national security, under such circumstances, may well be decided by the activity of civilian medicine. We cannot think of this matter in terms of 30, or 20, or even 10 years. We shall have to use our talents as never before. We shall have to use them swiftly and courageously. It is only by being adequately motivated and properly trained that we can calmly and understandingly carry on in the event of a great emergency.

What is considered the ideal type of practice for a given injury in civilian life may not be possible under conditions of military action where thousands of casualties are concerned. There will be those who will have to make the decision as to who is to wait and who is to receive immediate care and who will die without care. They will have a great responsibility, but such decisions must be made under conditions of mass casualties. These decisions will be made best by those who have had the opportunity to face the problem. The best care will be given by those who have been trained not in the traditional methods of care but in the emergency methods of care, for, in the words of Jacob Bigelow, "He will then interfere or he will wait, he will act or he will forebear, as he only knows how who can form a correct verdict from the evidence before him, and knows the immeasurable good or harm which hangs on medical practice."

The only way the civilian doctor will surmount the difficulties associated with the many casualties that will occur in future catastrophies of warfare will be by having the wisest type of leadership in medicine. We will not achieve success by last minute attempts to solve the problems that will present themselves. If such a circumstance occurs, catastrophe, as we have never known it before, will follow. If we plan wisely and plan harmoniously, we will be ready to meet any emergency that may arise. Civil defense on a local or even a regional basis is, in my opinion, unrealistic. We must develop a plan that will permit the transfer of those concerned with medical care from distant areas and the assignment of those available at the local level. Whether these individuals will be under complete civilian control or whether they will, once they are called to duty, be under military control should be decided before the emergency arises. What needs to be recognized now is that they must be under some type of disciplinary control. The future can not be left to chance. The medical profession, both civilian and military, must not be a party to any action that undermines the faith that the civilian population has traditionally held in us.

Recently, Major Gen. Paul R. Hawley testified before Congress that the civilian physician, under inadequate disciplinary control, might not, in the event of serious catastrophe, attempt to find his way to the point of his assignment but that he might well attempt to find his way to his home to see what had happened to his family. If the fields of future activity are clearly delineated and each man not only knows his point of assignment but knows what will be expected of him, he will know which way to go in the hour of trial.

DEPENDENT CARE PROBLEM

These are but a few of the problems in which the civilian doctor must play an important role in the maintenance of our national security. The dependent care problem is perhaps equally important. An equitable solution to this problem is not at the moment at hand. It will not be solved merely by stating that the families of our military forces should remain at home during long periods of what actually amounts to an armed truce. It will not be solved by insisting that dependents should be taken care of in civilian institutions and by civilian physicians not on military duty. It will be solved only by a clear concept of this great problem and by the united willingness of physicians, both civilian and military, to meet it. A great majority of those now serving in our military forces are individuals who have come from civilian life and intend to return to it. I have been careful to observe that when my residents and assistant residents go on active duty they take their families with them. The many other nonmedical personnel wish to do likewise. We should not during this period deny them this privilege. They have every right to expect care not only for themselves but for their dependents. How this should be provided and where it should be provided is the matter that needs solution. The responsibility is not alone a military one. It is a responsibility of medicine as a whole, and it can and will be, I am sure, equitably met.

3400 Spruce St. (4).

CLINICAL NOTES

INSULIN COMA THERAPY IN ADVANCED PREGNANCY WITHOUT HARM TO MOTHER OR CHILD

Joseph A. Luhan, M.D., Chicago
and
Werner Tuteur, M.D., Elgin, Ill.

Only a few cases of insulin shock therapy during pregnancy are reported in the literature. Goldstein, Weinberg, and Sankstone [1] reported the employment of insulin subcoma therapy on 13 treatment days, following a course of pentylenetetrazol (Metrazol) convulsive therapy, without harm to the child. Although their description does not mention just when in the course of the pregnancy insulin was used, one infers that it was after the gestation was at least four months advanced. McConnell [2] in 1945 mentioned two cases: insulin coma therapy was started when one of the patients was 10 weeks' pregnant and the other 14 weeks' pregnant. Neither showed any abnormal symptoms during treatment, and both delivered normal babies. One of these children was 9 months old and the other was over one year old at the time the paper was written. On the other hand, Gralnick [3] had less fortunate experience with two patients treated by means of insulin-induced coma; each gave birth to a dead fetus at term. In the first case, treatment was begun when pregnancy was about two months' advanced and included 14 coma sessions ending early in the second trimester; at term the patient delivered a macerated fetus weighing 17 lb. (7,711 gm.). The second patient in Gralnick's report received electric shock therapy about a month after becoming pregnant, followed by insulin shock therapy initiated when she was about two months' pregnant. The 18 sessions of the latter therapy resulted in eight comas and were discontinued shortly after the start of the second trimester. At apparent term, this patient suddenly went into labor and delivered a macerated fetus weighing 7 lb. 10 oz. (3,459 gm.). Kent [4] reported on the case of a paranoid schizophrenic patient whose pregnancy terminated in delivery of a normal infant. This patient received during the fifth, sixth, and seventh months of gestation treatment with insulin on 90 days and 20 electroconvulsive treatments.

REPORT OF A CASE

The patient was a 22-year-old woman, native-born of Polish stock, the third in a sibship of seven. There was no family history of mental illness. Her parents had little time for her during her developmental years. She completed high school and then worked as a comptometer operator, continuing at this for two years after her marriage, which occurred when she was 17. She had received no sexual instruction from her parents. Her entire family was opposed to her marriage because the husband was not Polish and was considered to be domineering. She had become somewhat estranged from her family since her marriage. There was one child, a boy 3 years old, whose delivery was by a difficult breech presentation. The patient was described as a quiet, shy, sensitive, moody, and meticulous person, who confided very little in her husband or relatives, had few friends, and at times was given to daydreaming. For the past two years, her husband had been half owner of a truck-painting business. The patient was very resentful because he spent long hours at his work, and she disliked his business partner, who was known for his marital infidelity. After the patient became pregnant a second time, she pleaded with her husband to give up his business, and heated quarrels over this became increasingly frequent. It was the husband's impression that she feared the pending second delivery because of the trying experience with the first, and as the pregnancy advanced she wished that she would miscarry. When she first learned that she was going to have another child, she became depressed, quiet, hard to get along with, and resentful of her husband. However, when quickening occurred, she felt better and visited her parents in Wisconsin but while there was seclusive. About 10 days before admission to the hospital she called her husband, asking him to come home from work because she thought she was going to have a miscarriage. When he arrived she said that she had already lost the baby, spoke incoherently, and stayed up until 4 a. m. She tore things from the dresser drawers and wanted to return everything that anyone had ever given her. She remarked that her husband was not providing enough for them to live on and was not giving her what she wanted. After this episode she stopped doing the housework and neglected their 3-year-old son. She thought people were looking at her and crying because she was dying. She felt there was no hope for her and it was too late for help, all through the fault of her husband. She said over and over again that her husband left her when she needed him most. She slept very little and ate poorly. The patient would remark that she was hungry, look down at her abdomen, and then say that she was full. She considered sedatives prescribed for her to be poison and thought that if she went to the hospital she would be embalmed.

The patient was admitted to Loretto Hospital on May 14, 1954, where she was treated by one of us (J. A. L.), receiving 19 electric shock treatments and 8 insulin subcoma treatments, the latter produced by doses varying from 25 to 80 units of regular insulin per session. The insulin therapy was begun on June 3, 1954, in the third trimester of gestation (delivery occurring on Aug. 10, 1954). On admission to the hospital she appeared confused and bewildered, said that "they" were laughing at her, spit out medicaments, and became combative. She was noisy; laughed inappropriately; yelled, screamed, or sang from time to time; and maintained she was having a miscarriage. There was involuntary urination. She remained agitated and disturbed in spite of electroconvulsive treatment and sedation and showed no significant improvement after eight subcoma insulin treatments. At night she experienced visual hallucinations and, if not restrained, often tried to crawl under the bed in response to fearful hallucinations that men outside her window were coming in to attack her. A diagnosis of severe schizophrenic reaction of a mixed type was made.

On June 11, 1954, she was transferred to the Elgin State Hospital as a voluntary patient, where on admission she was found to be seven months' pregnant. While she was friendly and contact was easily established, she immediately impressed

---

From the Stritch School of Medicine, Loyola University (Drs. Luhan and Tuteur) and the Illinois Department of Public Welfare, Elgin State Hospital (Dr. Tuteur).

[1] Goldstein, H. H.; Weinberg, J., and Sankstone, M. I.: Shock Therapy in Psychosis Complicating Pregnancy: Case Report, Am. J. Psychiat. **98**: 201 (Sept.) 1941.

[2] McConnell, J.: Two Years' Experience of Female Schizophrenics Treated by Insulin Coma Therapy, J. Ment. Sc. **91**: 506 (Oct.) 1945.

[3] Gralnick, A.: Shock Therapy in Psychoses Complicated by Pregnancy: Report of 2 Cases, Am. J. Psychiat. **102**: 780 (May) 1946.

[4] Kent, E. M.: Shock Therapy During Pregnancy, Psychiatric Quart. **1**: 102 (Jan.) 1947.

the examiner as immature and childish. She related an alleged experience she had prior to being transferred to this hospital, saying two men came into her room at Loretto Hospital one night, climbing up a tree and entering through a window, however, not raping her. An inappropriate laugh accompanied this description. Several days after admission she became extremely agitated, confused, and was very frightened. At times she would ask the examiner if she was alive, but at other times she was able to discuss matters coherently.

On June 14, 1954, subcoma insulin therapy was resumed, beginning with 15 units the first day and 20 units the following day. The patient remained fearful and tremulous, was confused most of the time, and wandered about the ward. On June 21, 1954, she was started on insulin shock therapy, beginning with the administration of 20 units. This was eventually increased to 280 units but then decreased gradually to 170 units. On Aug. 10, 1954, at 12:30 a. m., the day she was to receive her 38th treatment, she delivered a full-term baby weighing 7 lb. 4 oz. (3,289 gm.).

The patient had received, prior to this, a total of 37 insulin shock treatments, with 26 comas and no seizures. Her last treatment prior to the delivery was on the day before, Aug. 9, 1954, and terminated at 11 a. m. During the course of treatment the patient began to dress more neatly and seemed more cooperative. Her apprehension abated; at times she was euphoric and confused, but she became more interested in her surroundings. On July 11, 1954, a relapse occurred during treatment. She became again confused and preoccupied, and her inappropriate laughter returned. Her treatments were discontinued after the delivery, and little psychiatric improvement was noted at that time. She became withdrawn, preoccupied, and anxious, yet remained cognizant of the baby's existence. No emotional display in any direction was noticeable regarding the latter. A complete battery of psychological tests performed on Sept. 2 gave evidence of a long-standing schizophrenic illness with catatonic features.

By Sept. 6, 1954, the patient had improved sufficiently to go home with her husband on overnight visits. These visits were repeated on Sept. 11 and 19 and Oct. 3. She stayed home with her baby and husband from Oct. 16 through Oct. 21, and at that time she began to exhibit a pleasant frame of reference, remained in full contact, and was no longer confused. By Nov. 17 symptomatic remission had occurred, and during an interview on that day she fully realized that she had been extremely worried during her second pregnancy, fearing it might end in a complication similar to her previous delivery. She was fully aware of her own personality difficulties and her inadequacies, with which she had been struggling for as long as she could remember. She felt, however, that she was well enough to leave the institution and discharged herself, being a voluntary patient. She had fully accepted her baby. Recent follow-up reveals that she remains in good contact with reality, is very fond of the baby, and has not shown any overt psychotic behavior.

The baby boy was admitted to the pediatric service of Dr. Maxwell Borovsky at the Cook County Hospital for observation from Nov. 30 to Dec. 2, 1954, when he was a little over 3½ months old. He weighed 16 lb. (7,257 gm.). Examination revealed normal findings with respect to physical appearance, behavior, x-ray appearances of chest and the skeleton, and laboratory studies, including urinalysis, blood cell count, liver function tests, determination of nonprotein nitrogen content of the blood, and glucose tolerance test. The fasting blood sugar level was 87 mg. per 100 cc.; one hour after 100 cc. of 5% glucose by gavage, the blood sugar level was 139 mg. per 100 cc., after two hours, 91 mg. per 100 cc. At this writing, the baby is almost 6 months old and continues to be well and to develop normally.

COMMENT

It is now generally accepted that electroconvulsive therapy for mental illness can be safely administered throughout pregnancy. It would seem that insulin coma therapy begun in the latter half of pregnancy may be used without harm to the child and that pregnancy should not be considered a contraindication to needed shock therapy of this type. In the case reported, the 26th hour of insulin coma therapy was terminated only 13 hours before delivery, without ill-effects on mother or child.

ADDENDUM

Mother and child were reexamined by us on Oct. 11, 1955. The mother had remained well adjusted in her activities as a housewife and mother. Her husband reported that she was better than at any time he had known her, generally more friendly, sociable, and happy than before her illness. She displayed appropriate emotional response and was realistically aware that she had been seriously ill. The child, now 14 months old, showed normal physical and mental development. He weighed 30 lb. (13.6 kg.) and was 33 in. (83.8 cm.) tall. He had begun to walk at 10 months of age, now had a vocabulary of about 20 words, and was partially toilet trained.

29 E. Madison St. (2) (Dr. Luhan).

PROPANTHELINE (PRO-BANTHINE) BROMIDE IN RELATION TO NORMAL AND GLAUCOMATOUS EYES

EFFECTS ON INTRAOCULAR TENSION AND PUPILLARY SIZE

Mansukhlal V. Mody, D.O.M.S., Surat, India
and
Arthur H. Keeney, M.D., Louisville, Ky.

The increasing use of many autonomic blocking agents in various fields of medicine poses a hazard to the unwary patient with glaucoma or the person who may not realize he has glaucoma. Each new drug of clinical usefulness to the gastroenterologist, internist, and neurologist should receive ophthalmic evaluation in regard to both normal eyes and various types of glaucomatous eyes.

Our previous studies [1] with dicyclomine (Bentyl) hydrochloride showed single 10 mg. doses of this agent to have no effect on intraocular tension or pupillary size in a variety of nonglaucomatous patients hospitalized for other ophthalmic problems. In hospitalized glaucomatous patients with tensions reduced to the 19 to 32 mm. Hg (Schiøtz) range, however, such an orally given dose of dicyclomine hydrochloride was generally followed by a rise of 3 to 10 mm. Hg within one hour. This rise would continue to a peak within two to three hours, after which the tension would spontaneously return to the level before dicyclomine hydrochloride was administered in another two or three hours, or else a course of strong miotics would be required. These changes were without alteration in pupillary diameter. The purpose of the present study is to evaluate the effect of a single orally given dose of 15 mg. of propantheline

---

From the Section on Ophthalmology, University of Louisville School of Medicine.

The propantheline (Pro-Banthine) bromide used in this study was supplied by Mr. G. L. Standley of G. D. Searle & Co., Chicago.

[1] Leopold, I. H., and others: Autonomic Ganglion and Parasympathomimetic Blocking Agents in Ophthalmology, read before the Fourth Wills Hospital Conference, Philadelphia, March 22, 1952.

(Pro-Banthine) bromide on intraocular tension and pupillary size in 20 successive glaucomatous patients and 20 nonglaucomatous control patients, without regard to age, color, or systemic disease.

PROCEDURE

Patients selected for study had known ophthalmic histories and were under the supervision of the eye clinic of the University of Louisville. The majority of them were in the older age groups. Intraocular tension and pupillary diameter were measured, and then the patient was given 15 mg. of propantheline bromide by mouth. Repeat measurements were made at one, two, and three hour intervals.

RESULTS

None of the 40 patients showed any significant alteration in pupillary diameter. Of the 20 normotensive control patients, none had significant elevations in tension. Two eyes showed an elevation of 3 mm. Hg at the one hour reading, and three eyes measured 2 mm. Hg higher at the end of three hours than on initial reading. Most eyes showed an average fall of 2 to 3 mm. Hg during the series of readings, probably on the basis of massage to the globe during previous measurements.

Of the 20 glaucomatous patients, 13 had chronic simple (open angle) glaucoma, one had primary chronic congestive glaucoma, and the remaining 6 had secondary glaucoma (2 secondary to uveitis; one secondary to traumatic intraocular hemorrhage; one secondary to posterior subluxation of the lens; and 2 secondary to cataract extraction with peripheral anterior synechia). Fifteen of these glaucomatous patients showed no significant rise in tension after the 15 mg. dose of propantheline bromide. Five eyes, however, showed increases of 6 to 14 mm. Hg apparent one hour after medication. Three of these eyes showed chronic simple (open angle) glaucoma with tensions that had been reduced under treatment to 40, 23, and 18.5 mm. Hg; their maximum increases amounted to 10, 6, and 11 mm. Hg respectively. One patient with glaucoma secondary to uveitis with a tension of 27 mm. Hg showed a rise of 11 mm. Hg, and the remaining patient, who had chronic congestive glaucoma with a tension of 22 mm. Hg, showed a rise of 14 mm. Hg. In general these increments were maintained at about the same level (average variation among successive readings on the same eye, 3.8 mm. Hg), and additional miotics were required to reduce the tension after these observations.

SUMMARY AND CONCLUSIONS

The effect of oral administration of 15 mg. of propantheline (Pro-Banthine) bromide on pupillary diameter and intraocular tension in the eyes of 20 glaucomatous patients and 20 control patients with normal eyes was quantitated. There was no effect on pupillary diameter in any eye and no significant alteration in intraocular tension in the eyes of the normotensive control patients. Five eyes in glaucomatous patients showed tension elevations of 6 to 14 mm. Hg that were generally sustained at the increased level during the three hour period of observation.

Propantheline bromide is a quaternary ammonium compound with anticholinergic or atropine-like actions similar to its antecedent, methantheline (Banthine) bromide, and older autonomic blocking agents such as dicyclomine (Bentyl) hydrochloride. Propantheline bromide appears to have no effect on the intraocular tension of nonglaucomatous eyes but may cause dangerous elevations of tension in eyes with either primary or secondary glaucoma. Patients who are to receive propantheline bromide treatment, particularly if they are above the age of 40, should have a preliminary tonometric evaluation of intraocular tension and a screening examination for glaucoma. The presence of glaucoma of any type is a relative contraindication to the use of propantheline bromide.

Heyburn Building (2) (Dr. Keeney).

OXYGEN FOR ACUTE RESPIRATORY DEPRESSION DUE TO ADMINISTRATION OF THIOPENTAL SODIUM

John B. Dillon, M.D.
and
Marvin L. Darsie, M.D., Los Angeles

It is a well-recognized fact that barbiturates produce respiratory depression when administered intravenously, since their action as anesthetics is associated with depression of respiratory activity. For this reason it seemed worthwhile to compare the effects of thiopental (Pentothal) sodium on arterial blood oxygen of 18 patients undergoing a simple surgical procedure with the effects of administering oxygen simultaneously with the thiopental sodium to another group of 10 patients. In this group of 28 female patients, between the ages of 19 and 37, all had a diagnosis of incomplete abortion and were brought to surgery for a therapeutic dilation and curettage. Except for the presence of mild to severe anemias there were no other complicating medical conditions.

PROCEDURE

All patients were given 1/150 grain (0.4 mg.) of atropine as premedication one hour before surgery. Under local anesthesia a Cournand needle was placed in either the radial or brachial artery. There were no complications in any patient due to an indwelling intra-arterial needle. After several moments to allow for acclimation, an arterial blood sample was drawn, from which duplicate oxygen determinations were made by the Van Slyke-Neil technique. The hemoglobin level was determined with an accurately calibrated colorimetric hemoglobinometer. It was planned initially to use atropine premedication and thiopental sodium alone for these studies, but reactions of the patients were such that this procedure was considered unsafe. Consequently, the procedure was modified, and 100 mg. of meperidine (Demerol) hydrochloride diluted to 10 cc. was slowly injected intravenously. Five minutes after

---

From the Department of Surgery (Division of Anesthesia) of the University of California Medical Center.

This investigation was supported by a research grant from the National Institutes of Health, Public Health Service, at the University of Southern California.

the injection was made, an arterial blood sample was drawn and an oxygen analysis made. In several patients, not included in this series, arterial blood samples were drawn at 10 and 15 minute intervals after the injection to determine the effect of meperidine hydrochloride alone upon arterial oxygen content. After the withdrawal of the arterial blood sample, made after administration of meperidine hydrochloride, thiopental sodium was administered intravenously in amounts just adequate to completely obtund reflex reaction to perineal stimulation in an effort to establish as consistent an anesthetic end-point as possible. Five minutes after the injection of thiopental sodium another arterial blood sample was taken. Nitrous oxide and oxygen were then administered in a 3:1 ratio with slightly assisted respiration for 10 minutes and a final arterial blood sample withdrawn. In the second series consisting of 10 patients the procedure was modified only to the extent that pure oxygen was administered by a mask for five minutes before the initial injection of meperidine hydrochloride and thereafter during the entire procedure until the course with nitrous oxide and oxygen mixture was started.

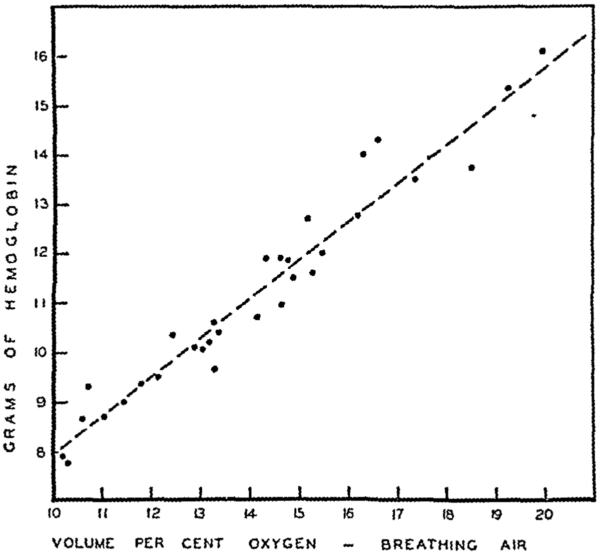


Fig. 1.—Relationship observed between volume per cent of oxygen and arterial blood and the hemoglobin level in patients who are awake and breathing room air.

RESULTS

Figure 1 shows the relationship that was observed between volume per cent of oxygen and arterial blood and the hemoglobin levels in these patients who were awake and breathing room air. It was interesting to note that in the majority of these patients the hemoglobin level values were less than 13 gm. per 100 cc. and the oxygen content of the arterial blood less than 16 vol. %. Moderate anemia is a common clinical finding, and its importance should be carefully considered in the administration of clinical anesthesia. The hemoglobin content of the blood was recognized as a measurable variable in this series. However, resting arterial oxygen saturations of these patients breathing air were within normal limits in all cases (90% and 95% saturated), and, therefore, this variable was not considered to be significant in these studies.

FIRST SERIES

The first series was comprised of 18 patients who had had simple surgical procedures.

Effects of Intravenously Administered Meperidine Hydrochloride.—The intravenous injection of 100 mg. of a dilute solution of meperidine hydrochloride produced no untoward effect in any patient. The maximum respiratory depression was found to occur about five minutes after the intravenous administration of morphine or after respiration. All patients experienced drowsiness, lassitude, and a feeling of well-being at the end of the five minute period. Figure 2 shows the effects of 100 mg. of intravenously given meperidine hydrochloride on the arterial oxygen content of these 18 patients. The average drop in arterial oxygen from the resting level was approximately 2.5%. It should be noted, however, that the reaction was variable, and in one patient the drop was 12%.

Effect of Thiopental Sodium.—The intravenous injection of thiopental sodium produced a drop in arterial oxygen, as was expected. The combined depressant action of meperidine hydrochloride and thiopental sodium lowered the arterial oxygen content to an average of 10% below the level of these patients awake and breathing room air. Since no relationship could be established between the effects of the intravenous administration of meperidine hydrochloride and the effects of thiopental sodium on the drop in arterial blood oxygen content, it was not considered necessary or desirable to relate each individual procedure with a line graph. It was felt that the trend and general principle noted in this series of observations was of more importance than the individual reactions, which were highly variable.

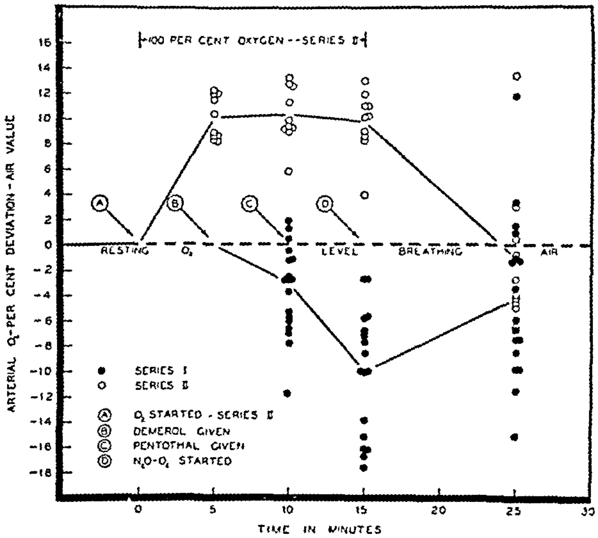


Fig. 2.—Mean arterial oxygen level remains unchanged at a value of 10% above that of resting level when patients who are breathing pure oxygen receive meperidine (Demerol) hydrochloride intravenously.

Effect of the Addition of Nitrous Oxide and Oxygen.—There was a tendency for the oxygen content of the arterial blood to return to the meperidine hydrochloride level after the administration of 25% oxygen and 75% nitrous oxide, although the patients were in essentially the same level of anesthesia from all objective signs. The spread in the arterial content of the blood, however, was wide, and it is our belief that the grouping would have been better if a similar study could have been done with nitrous oxide and oxygen substituted for the oxygen, as in series 2. Nevertheless, it is felt that nitrous oxide and oxygen are justified and indicated in lessening the over-all respiratory depression to the level observed when thiopental sodium alone is administered.

SECOND SERIES

In the second series, comprised of 10 patients, the procedure was modified, in that pure oxygen was administered.

Effect of Breathing Pure Oxygen.—In series 2 of figure 2 a significant average increase of 10% in arterial oxygen content is shown when pure oxygen is substituted for room air. This group snowed surprisingly little variability, and the findings are roughly consistent with the theoretical amount of oxygen taken up in solution by the plasma due to an increase of partial pressure of oxygen from 100 to 600 mm. Hg.

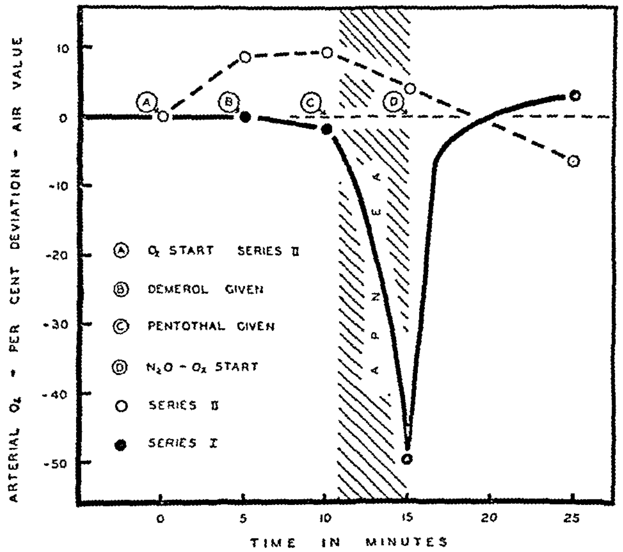


Fig. 3.—Fall in arterial oxygen content when apnea occurred in one patient after administration of thiopental (Pentothal) sodium.

Effect of Intravenous Administration of Meperidine Hydrochloride.—When patients who are breathing pure oxygen receive intravenous administration of meperidine hydrochloride, the mean arterial oxygen level remains unchanged at a value of 10% above that of resting level (fig. 2). It is thought to be significant not only in relation to anesthesia but to general patient care; that intravenously given meperidine hydrochloride, which produces a small but significant drop in arterial oxygen in patients breathing room air, fails to do so in patients breathing a high concentration of oxygen. It seems that this has implications applicable to the care of patients in the immediate postoperative period when drugs used as premedication and as anesthetics may still be exerting a depressant effect.

Effect of Thiopental Sodium.—In this group of patients breathing pure oxygen instead of room air, the combined action of meperidine hydrochloride and thiopental sodium produced no significant drop in arterial oxygen content. The oxygen content continued at a higher level than the resting normal value despite the fact that apnea of several minutes was not uncommon after the injection of thiopental sodium. Such protection against hypoxia seems significant, especially during induction of anesthesia and during endotracheal intubation.

Effect of Addition of Nitrous Oxide and Oxygen.—The lowering of the arterial oxygen level to that of the effects of intravenously administered meperidine hydrochloride reaffirms the effect of that medicament alone on respiratory activity and, we believe, demonstrates that the supplementation of thiopental sodium anesthesia with nitrous oxide and oxygen is justified and indicated.

EFFECT OF APNEA ON ARTERIAL OXYGEN CONTENT

One of the patients, not included in this series, showed apnea after administration of thiopental sodium (fig. 3). Four minutes later controlled respiration with 75% nitrous oxide and 25% oxygen was instituted. The patient was dark skinned, and cyanosis was not observed; however, the fall in arterial oxygen content was severe, particularly when contrasted with the stable oxygen level found in another patient breathing pure oxygen, who was also in apnea for the same period of time following the administration of thiopental sodium. We feel that these two cases illustrate dramatically the dangers inherent in thiopental sodium anesthesia and serve to emphasize the importance of giving a high concentration of oxygen with thiopental sodium, especially during the induction period.

SUMMARY AND CONCLUSIONS

It is possible to materially increase a patient's arterial oxygen content by administering pure oxygen during the induction of thiopental (Pentothal) sodium anesthesia. In the case of a person with moderate to severe anemia this may prevent a dangerous period of hypoxia, especially if apnea occurs without adequate assisted respiration. We feel that these findings constitute a strong argument against the promiscuous use of thiopental sodium without oxygen for even short periods and that the arterial oxygen content of patients breathing 25% oxygen and 75% nitrous oxide argues for its routine employment during maintenance of anesthesia. We have, as a direct result of this investigation, adopted a policy of giving patients pure oxygen for five minutes before endoscopy when thiopental sodium is used for induction of anesthesia. We believe that the evidence presented in these studies indicates that a brief period of safe apnea is thus assured for examinations or manipulations of short durations. A similar routine is followed for patients with endotracheal intubation, thus providing an extra margin of safety for the occasional difficult intubation.

COMMITTEE ON COSMETICS

Report to the Committee

The following report on acne vulgaris has been prepared at the request of the Committee.

VERONICA LUCEY CONLEY, *Secretary*

ACNE VULGARIS

Frederick D. Malkinson, M.D., Chicago

Acne vulgaris in mild form is so common in adolescent males and females that it can almost be regarded as a physiological alteration associated with other puberal changes. However, largely because of modern society's undue emphasis on the individual's personal appearance, the more serious forms of acne represent a true disease, which, though seldom endangering health, is not to be lightly dismissed because of its disturbing psychological, social, and economic consequences. The latter problems arise from the general population's latent antipathy to skin disfigurements and the subsequent deleterious mental effects engendered in certain patients. Many patients are tormented by feelings of abnormality and inferiority and shun all but essential social contacts. Girls are deprived of social engagements, young men are rejected for employment, and obstacles to marriage in either sex may be considerable. The degree of mental reaction is, of course, an individual variant, but not infrequently it is of sufficient severity to produce serious depression, withdrawal, and, occasionally, even expression of suicidal thoughts. Furthermore, interviews with unafflicted members of the adult population reveal that many associate acne with disturbed general health, "social disease," and irregular sexual practices.[1] The inexorable correlation of skin disease with dirt persists, as does the inescapable suspicion of contagiousness. It is little wonder then that the patient's suffering is derived more from the condemnation of a complexion-conscious society than from the symptomatology of his disease. The importance of therapy to all who seek it is apparent, and the intelligent approach combines reassurance and encouragement with treatment methods reflecting cognizance of the pathophysiology of the disease.

The association of acne lesions with the pilosebaceous unit was recognized over 200 years ago.[2] It is well known today that there are two main pathogenic factors: hyperplasia of sebaceous glands with subsequent seborrhea and hyperkeratinization of the follicular pore. The first development, and perhaps the second, is produced by the physiologically increased testosterone levels in boys and increased progesterone levels in girls at puberty.[3] The severity of response of the target organ, the pilosebaceous apparatus, is apparently determined by genetic factors. Where hyperkeratosis at the follicular opening causes blockage of the sebum exit there is dilatation of the follicle. Stagnation and decomposition of sebum is followed by perifollicular inflammation and often by secondary bacterial infection. Pressure of the macroscopic or microscopic comedo resulting in fragmentation of the follicular wall and sebaceous gland may produce atrophy.[4] The clinical progression of acne lesions through the stages of comedo, papule, pustule, and cyst reflects the sequence of these pathological changes, while the occurrence of pitted scarring depends on the degree of destruction of the pilosebaceous apparatus and perifollicular connective tissue.

It is known that testosterone in the male and progesterone in the female are prerequisites for the development of acne. Furthermore, animal experiments have shown that these effects are counteracted by administration of large amounts of estrogenic hormone. Nevertheless, a practical approach to hormonal treatment of acne is still lacking because the high dosage of estrogens required to produce clear-cut reduction in sebaceous gland volume [5] is rendered impractical for clinical usage by the accompanying dangerous side-effects in both sexes. At present, then, treatment depends rather on utilization of empirically established local and general measures that vary in scope and intensity with the severity of skin changes.

LOCAL THERAPY

Local therapy is essentially directed toward combating sebaceous gland hyperplasia and seborrhea and toward eradicating keratin plugs, thereby preventing development of new lesions. Sulfur, which has a pronounced antiseborrheic effect, and keratolytics such as strong alkaline soaps, resorcinol, and salicylic acid are principal agents employed to achieve these objectives. Using hot water and soap, the patient gently massages the skin of the face between the fingers for 5 to 10 minutes each night. (Personal experience indicates that potassium soap [medicinal soft soap, U. S. P.] is more effective than the conventional sodium soaps.) After rinsing with cool water and blotting the skin dry with a towel, a lotion or paste containing one or more antiseborrheic and keratolytic substances is applied. Such preparations must be test-applied initially to a limited skin area to avoid widespread irritation. It is safest to begin with nightly application of a shake-type lotion composed of: precipitated sulfur, 3 gm.; resorcinol, 2 gm.; zinc oxide, 22.5 gm.; talc, 22.5 gm.; glycerin, 10 gm.; and purified water sufficient to make 100 cc.

If such a lotion can be tolerated, the strength of the active ingredients may be gradually increased to maintain dryness and slight scaling. Concentrations to 20% sulfur and 5% resorcinol in the above vehicle can be

---

From the Section of Dermatology, Department of Medicine, University of Chicago.

[1] Marshall, W.: The Psychology of the General Public with Regard to Acne Vulgaris, Canad. M. A. J. 44:599 (June) 1941.

[2] Hodgson-Jones, I. S.; MacKenna, R. M. B., and Wheatley, V. R.: The Study of Human Sebaceous Activity, Acta dermat.-venereol. (supp. 29) 32:155, 1952.

[3] Hamilton, J. B.: Male Hormone Substance: A Prime Factor in Acne, J. Clin. Endocrinol. 1:570 (July) 1941. Haskin, D.; Lasher, N., and Rothman, S.: Some Effects of ACTH, Cortisone, Progesterone and Testosterone on Sebaceous Glands in the White Rat, J. Invest. Dermat. 20:207 (March) 1953.

[4] Lynch, F. W.: Acne Vulgaris: Review of Histologic Changes Observed in Early Lesions, Arch. Dermat. & Syph. 42:593 (Oct.) 1940.

[5] Ebling, F. J.: Sebaceous Glands: The Effect of Sex Hormones on the Sebaceous Glands of the Female Albino Rat, J. Endocrinol. 5:297 (June) 1948.

used. For severe cystic forms of acne, the following freshly prepared sulfurated lime solution (Vleminckx' solution), a strong sulfide preparation, is especially useful: sulfurated lime solution, 8 cc., 10 cc., or 12 cc., and purified water sufficient to make 120 cc.

Ideally, all local applications to acne areas should be free of greases for reasons that are readily apparent. On the other hand it is well known that the effects of sulfur and salicylic acid are potentiated if applied after incorporation into pastes and ointments. The advantages of this enhanced action are obvious when the concentrations of antiseborrheic and keratolytic agents are high. Accordingly, the following paste may be used when clinical response to lotions is inadequate: precipitated sulfur, 10 gm.; salicylic acid, 5 gm.; resorcinol, 2 gm.; and zinc oxide ointment, U. S. P., sufficient to make 100 gm.

Although excellent results have been obtained with such a paste, some dermatologists prefer to avoid all greasy or pasty bases, using instead emulsion bases or water-washable vehicles with sulfur, such as described by Frazier and Blank.[6] For daytime applications a lotion with admixture of coloring materials designed to approximate skin color can be used (see table). Daytime use of this type of lotion provides the advantages of more continuous therapy.

Lotion with Coloring Material for Daytime Use

	Light	Medium	Dark
Neutracolor	2.9 gm.	4.2 gm.	6.7 gm.
Zinc oxide	....	8.3 gm.	....
Talc	....	8.3 gm.	....
Calamine	....	8.3 gm.	....
Glycerin	....	8.3 gm.	....
Alcohol 70%	....	16.6 cc.	....
Purified water sufficient to make	....	100.0 cc.	....
May add			
Precipitated sulfur	3%	5%	10%
Resorcinol	2%	2%	2%

It is hardly necessary to mention that numerous commercially compounded preparations containing sulfur, resorcinol, and so forth are readily available. Although such preparations are not in themselves objectionable, the experienced physician prefers magistral prescriptions that allow him full freedom in selecting the vehicles and concentrations of active ingredients best suited to the individual case.

ULTRAVIOLET AND X-RAY THERAPY

Summertime improvement in patients with all forms of acne attests to the beneficial hyperemic and desquamative effects of ultraviolet light. While fairly intense ultraviolet radiation with mercury vapor lamps can be given as an office procedure, satisfactory results may be obtained from the home use of a small inexpensive bulb (RS model) that inserts into a standard lamp socket. At a distance of 15 in., irradiation of affected parts is begun with an exposure time of one minute; this is increased by 30 seconds each day until a 10 minute exposure time is reached. Such treatment is then continued daily at the same time level. For irradiation of the face, the left side, right side, and front are successively exposed after the eyes are protected with moist cotton. Directions concerning protection of untreated areas and precautions against overexposure are essential. A careful balance between the use of local applications and ultraviolet rays is necessary to avoid excessive drying, erythema, and scaling.

Judiciously administered x-ray therapy may be of great value in severe cases. Selection of patients and technique of administration, however, must be left to those with specialized training. The work of Sulzberger and his associates[7] has shown that in expert hands this treatment method does not involve harmful sequelae.

GENERAL MEASURES

In addition to therapy of affected parts, care of the scalp is important. Acne lesions here are rare, but correction of seborrhea and excessive scaling of the scalp, when present, seems to be beneficial to facial acne. Shampoos with medicinal soft soap liniment, U. S. P. (tincture of green soap), can be given twice weekly, followed by an ointment containing an average concentration of 3% sulfur and 2% salicylic acid in rose water ointment, U. S. P. The use of a cold cream base facilitates effective massage. Again, some dermatologists prefer emulsion bases or water-washable vehicles for such treatment.

Certain additional measures are indicated. Female patients should avoid cosmetic preparations with greasy bases; for males, omission of hair pomades is desirable and short haircuts facilitate scalp care. To avoid self-inflicted scar formation and spread of infection, all patients must refrain from squeezing blackheads, pustules, and cysts.

Occasionally, local procedures in the office are helpful. While cysts are best treated conservatively with hot compresses, persistent fluctuation without signs of involution may require active drainage. With the patient under ethyl chloride anesthesia, fluctuant lesions can be aspirated with a large-bore needle or incised with a small opening at the dependent portion.

Since topical applications eliminate most comedones, manual extraction of these lesions is seldom necessary. When results of treatment are limited and comedones numerous or deeply imbedded, hot compresses locally followed by careful removal with a comedo extractor, without application of undue pressure, may be desirable. Also often helpful in cases of pustular, nodular, and cystic acne, is the local use of carbon dioxide "slush," a mixture containing dry ice and acetone, with or without sulfur. This preparation, applied with the gauze-wrapped tip of a tongue depressor, may be used once or twice weekly and produces a satisfactory postinflammatory exfoliation.

---

6. Frazier, C. N., and Blank, I. H.: A Formulary for External Therapy of the Skin, Publication 201, American Lecture Series, Monograph in American Lectures in Dermatology, Springfield, Ill., Charles C Thomas, Publisher, 1954, p. 94.

7. Sulzberger, M. B.; Baer, R. L., and Borota, A.: Do Roentgen-Ray Treatments as Given by Skin Specialists Produce Cancers or Other Sequelae? Follow-Up Study of Dermatologic Patients Treated with Low-Voltage Roentgen Rays, A. M. A. Arch. Dermat. & Syph. 65:639 (June) 1952.

General measures are recommended in the treatment of almost every patient with acne vulgaris. The efficacy of some of these measures varies considerably in individual cases, however, as do practitioners' estimations of their value. The initial recommendations are those most observers might consider useful.

The relationship of diet to all forms of acne has long been appreciated, and certain restrictions are advisable. Apparently some foods may produce aggravation either by increasing sebum production or by producing follicular irritation. Representative of the former group are carbohydrates and fats, while nuts, chocolate, and strong cheeses are representative of the latter group. For this reason, the intake of those foods should be reduced. Since iodides and bromides may produce acneform eruptions via follicular irritation, seafood and shellfish should be proscribed and in severe cases use of noniodized salt should be recommended. All patients must be warned against taking iodide or bromide medicaments. Dietary restrictions with compensatory increase in protein intake may be imposed initially on every patient, but continued rigid adherence may be unnecessary. Since many patients respond satisfactorily to local therapy despite the nature of their diets, it is apparent that dietary therapy must be individualized.

In cases of pustular and cystic acne antibiotic therapy has often been administered systemically. Long-acting penicillin preparations for intramuscular use [8] or 0.5 to 2 gm. of chlortetracycline or oxytetracycline for oral use daily [9] can be given until the active infection is optimally controlled, although repeated courses are often required. While the pustular element often improves remarkably, lack of uniform response, frequent side-effects, and expense of medication limit the practicability of such treatment. Local use of antibiotic ointments is of doubtful value.

Experience with so-called tropical acne among the troops in the South Pacific during the last war demonstrated that a hot, humid environment fosters development of acneform lesions, presumably by stimulating follicular hyperkeratosis and blocking pores.[10] Where similar factors exist, a drier climate may be beneficial to the patient with advanced acne.

HORMONES, VITAMIN A, AND TOXOIDS OR VACCINES

There remain for brief discussion such controversial remedies as hormone preparations, vitamin A, and toxoids or vaccines. As mentioned previously, the pathophysiology of acne vulgaris suggests therapeutic possibilities in the use of estrogens to overcome progesterone and testosterone effects. Systemic administration of diethylstilbestrol, conjugated estrogenic substances, or chlorotrianisene [11] has been widely recommended and done with varying dosages, being restricted to patients 18 years of age or older and, in the female, to the latter half of the ovulatory cycle. Side-effects include nausea and menstrual disturbances and, in the male, gynecomastia and loss of libido. The effectiveness of such therapy in dosages safe to administer remains debatable, and estrogens are therefore indicated only in extreme cases resistant to all other methods of treatment. Local application of these hormones to avoid systemic effects has produced inconclusive results, but, because of the remarkable absorption of steroids from the skin surface, strict dosage regulation is still required.

The use of Micrococcus (Staphylococcus) toxoids [12] and autogenous and stock vaccines followed the presumption that bacterial infection of acne lesions was an important pathogenic factor. Results from such preparations are sometimes surprisingly good when cysts and papules predominate. Whether the beneficial effect results from a desensitization process or merely reflects foreign protein therapy is problematical. The material is given intracutaneously in graduated dosages once or twice weekly for 10 to 20 injections. Such a course of treatment may be repeated after a four to six week interval.

Vitamin A preparations [13] also have their proponents. This substance, in sufficiently high dosages, interferes with follicular plug formation by virtue of its antikeratinizing potency. Water-miscible vitamin A preparations have been administered orally in dosages up to 100,000 units daily for periods of several months and have been claimed to be beneficial. In most cases, however, this method of therapy has been disappointing.

In occasional recalcitrant cases characterized by deep infiltrates and cyst formation, hospitalization of the patient for administration of fever therapy by any mode may be a very effective aid to treatment.

The recent introduction of surgical skin-planing techniques,[14] while still in a developmental phase, holds promise in the important field of improving unsightly scarring once disease activity has subsided. Only the experienced dermatologist or plastic surgeon should perform this procedure.

SUMMARY

In summary, most patients respond satisfactorily to the described local measures, together with ultraviolet light therapy and possibly dietary restrictions. In certain severe cases, discerning use of x-ray therapy, antibiotics, vaccines, fever therapy, and perhaps estrogens may improve results. In severe nodular and cystic cases, however, the present therapeutic armamentarium does not always yield satisfactory results, and the need for further clinical research in this field is readily apparent.

---

[8] Noojin, R. O.; Osment, L. S., and Winkler, C. H., Jr.: Antibiotic and Sulfonamide in Vitro Studies in Pustular Acne Vulgaris, A. M. A. Arch. Dermat. & Syph. **70**: 222 (Aug.) 1954.

[9] Robinson; H. M., Jr.: Role of Antibiotics in Therapy of Acne, A. M. A. Arch. Dermat. & Syph. **69**:414 (April) 1954.

[10] Novy, F. G., Jr.: A Severe Form of Acne Developing in the Tropics, Arch. Dermat. & Syph. **60**: 206 (Aug.) 1949.

[11] Sulzberger, M. B., and Witten, V. H.: Symposium on Diseases of the Skin: Hormones and Acne Vulgaris, M. Clin. North America **35**: 373 (March) 1951. Welsh, A. L.: Use of Synthetic Estrogenic Substance Chlorotrianisene (TACE) in Treatment of Acne, A. M. A. Arch. Dermat. & Syph. **69**: 418 (April) 1954.

[12] MacDonald, T. C., and Taylor, F.: Staphylococcus Toxoid and Pustular Acne, Lancet **2**: 558 (Sept. 29) 1951.

[13] Lynch, F. W., and Cook, C. D.: Acne Vulgaris Treated with Vitamin A, Arch. Dermat. & Syph. **55**: 355 (March) 1947. Savitt, L. E., and Obermayer, M. E.: Treatment of Acne Vulgaris and Senile Keratoses with Vitamin A: Results of a Clinical Experiment, J. Invest. Dermat. **14**: 283 (April) 1950.

[14] Kurtin, A.: Corrective Surgical Planing of Skin; New Technique for Treatment of Acne Scars and Other Skin Defects, A. M. A. Arch. Dermat. & Syph. **68**:389 (Oct.) 1953.

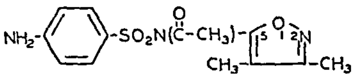
CHEMICAL LABORATORY

TESTS AND STANDARDS FOR NONOFFICIAL DRUGS

The following monographs were developed by the Chemical Laboratory for drugs that had been evaluated prior to Jan. 1, 1955, by the Council on Pharmacy and Chemistry. These monographs have not been published previously and are among the last of the Tests and Standards of the monographs that had been prepared during the former "acceptance" program of the Council on Pharmacy and Chemistry.

WALTER WOLMAN, Ph.D., *Director*.

Acetyl Sulfisoxazole.—$C_{13}H_{15}N_3O_4S$.—M.W. 309.35.—N^1-(Acetyl-3,4-dimethyl-5-isoxazolyl)sulfanilamide.—The structural formula of acetyl sulfisoxazole may be represented as follows:



Physical Properties: Acetyl sulfisoxazole is a white to slightly off-white, crystalline solid, with a slight characteristic odor. It melts at 192-195°. It is practically insoluble in water. The approximate amounts that dissolve at 25° in the following solvents to form 100 ml. of solution are: 0.4 gm. in alcohol, 2 gm. in chloroform, and 0.2 gm. in ether.

Identity Tests: Dissolve about 10 mg. of acetyl sulfisoxazole in about 1 ml. of hydrochloric acid and add 9 ml. of water. Cool the solution in an ice bath and add 3 drops of 1% sodium nitrite solution and 1 ml. of 10% sodium hydroxide containing 10 mg. of β-naphthol: an orange precipitate forms (*presence of a primary amino group*).

Prepare a 0.001% solution of acetyl sulfisoxazole as follows. Transfer to a 100 ml. volumetric flask 0.1 gm. of acetyl sulfisoxazole, accurately weighed, fill to the mark with alcohol, and mix. Transfer to a second 100 ml. volumetric flask 10 ml. of this solution, fill to the mark with alcohol, and mix. Finally transfer to a third 100 ml. volumetric flask 10 ml. of this last solution, fill to the mark with alcohol, and mix. This solution exhibits ultraviolet absorbance maxima at 220 and 292 mμ, and a minimum at 248 mμ.

Purity Tests: Make the following solutions. Prepare 0.1% Bratton-Marshall reagent by dissolving 0.1 gm. of N-(1-naphthyl) ethylenediamine dihydrochloride in water and diluting to 100 ml. in an amber glass volumetric flask. This solution is stable for 4 weeks when kept cold. Prepare 0.1% sodium nitrite and 0.5% ammonium sulfamate (stable for 4 weeks when kept cold in an amber bottle) and keep in the cold. Transfer to a 1,000 ml. volumetric flask 0.5 gm. of sulfisoxazole, U. S. P., accurately weighed, and dissolve it in 50 ml. of 0.1 *N* sodium hydroxide, using heat if necessary. Cool to room temperature, fill to the mark with water, and mix. Transfer to a 100 ml. volumetric flask 10 ml. of this solution, fill to the mark with water, and mix (Standard Solution). Transfer to a 100 ml. volumetric flask 0.2 gm. of acetyl sulfisoxazole, accurately weighed, add 2 ml. of saturated sodium bicarbonate solution, and shake for 5 min. Fill to the mark with water, mix, and allow the suspended material to settle. Transfer to a 120 ml. separatory funnel 50 ml. of the solution, accurately measured, extract with five 10 ml. portions of benzene, and discard the benzene. Transfer to a 50 ml. beaker 20 ml. of the extracted solution, accurately measured, and warm on a steam bath in a current of air to remove the residual benzene. Cool to room temperature, with the aid of small portions of water completely transfer the solution to a 50 ml. volumetric flask, fill to the mark with water, and mix (Sample Solution). In one 25 ml. volumetric flask place 15 ml. of water (Blank), in another 5 ml. of Standard Solution and 10 ml. of water, and in a third 15 ml. of Sample Solution. To each flask add 1 ml. of 4 *N* sulfuric acid and 1 ml. of 0.1% sodium nitrite. Stopper the flasks, shake well, and let stand for 5 min. Add 1 ml. of 0.5% ammonium sulfamate, stopper the flasks, shake well, and let stand for 2 min. Add 1 ml. of 0.1% Bratton-Marshall reagent, stopper the flasks, shake well, dilute to the marks with water, and mix. Allow the color to develop for 15 min. in the dark. Spectrophotometrically determine the absorbancy in 1 cm. cells at 540 mμ, using the prepared Blank Solution to set the instrument. The concentration of sulfisoxazole in mg./ml.=(absorbance÷absorbance of the standards)×concentration of sulfisoxazole in the standard. The amount of nonacetylated sulfisoxazole present in acetyl sulfisoxazole is not more than 2.5%.

Dry about 1 gm. of acetyl sulfisoxazole, accurately weighed, at 105° for 4 hours: the loss in weight does not exceed 0.5%.

Char about 1 gm. of acetyl sulfisoxazole, accurately weighed, cool the residue, add 1 ml. of sulfuric acid, heat cautiously until evolution of sulfur trioxide ceases, ignite, cool, and weigh: the residue does not exceed 0.1%. Save the residue for a heavy metals determination.

Dissolve the residue from the sulfated ash determination in 23 ml. of water, add 2 ml. of diluted acetic acid, and run a *U. S. P. heavy metals test:* the amount of heavy metals does not exceed 20 ppm.

Assay: (Acetyl Sulfisoxazole): Standardize a solution of 0.1 *N* sodium nitrite as follows. Transfer to a 250 ml. beaker 0.5 gm., accurately weighed, of U. S. P. reference standard sulfanilamide, previously dried for 3 hours at 105°. Dissolve it in 25 ml. of hydrochloric acid with warming, if necessary. Add 15 ml. of glacial acetic acid and 100 ml. of water, and cool to room temperature. Titrate potentiometrically using a calomel and a platinum electrode. The normality of the sodium nitrite= gm. sulfanilamide÷172.2. Transfer to a 250 ml. beaker 1.0 gm. of acetyl sulfisoxazole, accurately weighed, and dissolve it in 25 ml. of hydrochloric acid without warming. Add 15 ml. of glacial acetic acid and 100 ml. of water, and cool to room temperature. Titrate potentiometrically with 0.1 *N* sodium nitrite, using a calomel and a platinum electrode. Each milliliter of 0.1 *N* sodium nitrite is equivalent to 0.03094 gm. of anhydrous acetyl sulfisoxazole. The amount of acetyl sulfisoxazole is not less than 97.0 nor more than 103.0%.

Dosage Forms of Acetyl Sulfisoxazole

SUSPENSION. *Identity Tests:* Transfer to a 125 ml. separatory funnel an amount of suspension equivalent to about 0.5 gm. of acetyl sulfisoxazole, and add 10 ml. of sodium hydroxide T. S. and 90 ml. of water. Extract this solution with four 15 ml. portions of chloroform. Filter the chloroform extracts through a pledget of cotton and evaporate the filtrate on a steam bath in a current of air. The residue responds to the identity tests for the active ingredient in the monograph for acetyl sulfisoxazole.

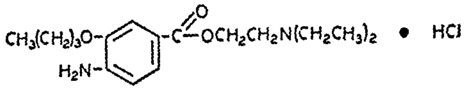
Assay: (Acetyl Sulfisoxazole) Using a pipet "to contain," transfer to a 250 ml. beaker an amount of suspension, accurately measured, equivalent to about 1 gm. of acetyl sulfisoxazole. Wash the pipet with a few small portions of water and add 25 ml. of hydrochloric acid to dissolve the acetyl sulfisoxazole, using heat if necessary. Add 15 ml. of glacial acetic acid and enough water to give a total volume of about 140 ml. Cool to room temperature. Titrate potentiometrically with 0.1 *N* sodium nitrite (standardized potentiometrically), using a calomel and a platinum electrode. Each milliliter of 0.1 *N* sodium nitrite is equivalent to 0.03094 gm. of anhydrous acetyl sulfisoxazole. The amount of acetyl sulfisoxazole is not less than 93.0 nor more than 107.0% of the labeled amount.

SYRUP. *Identity Tests:* Transfer to a 125 ml. separatory funnel an amount of syrup equivalent to about 0.5 gm. of acetyl sulfisoxazole, and add 10 ml. of sodium hydroxide T. S. and 90 ml. of water. Extract this solution with five 15 ml. portions of chloroform. If necessary, centrifuge for a few minutes at 2,500 rpm to separate completely the chloroform layer. Evaporate the chloroform on a steam bath in a current of air. The residue responds to the identity tests for the active ingredient in the monograph for acetyl sulfisoxazole.

Assay: (Acetyl Sulfisoxazole) Using a pipet "to contain," transfer to a 250 ml. beaker an amount of syrup, accurately measured, equivalent to about 1 gm. of acetyl sulfisoxazole. Wash the pipet with a few small portions of water and add 25 ml. of hydrochloric acid to dissolve the acetyl sulfisoxazole, using heat if necessary. Add 15 ml. of glacial acetic acid and enough water to give a total volume of about 140 ml. Cool to room temperature. Titrate potentiometrically with 0.1 *N* sodium nitrite (standardized potentiometrically), using a calomel and a platinum electrode. Each milliliter of 0.1 *N* sodium nitrite is equivalent to 0.03094 gm. of anhydrous acetyl sulfisoxazole. The amount of acetyl sulfisoxazole is not less than 93.0 nor more than 107.0% of the labeled amount.

Hoffmann-La Roche, Inc., cooperated by furnishing scientific data to aid in developing this monograph.

Benoxinate Hydrochloride.—$C_{17}H_{28}N_2O_3.HCl$.—M.W. 344.89.—β-Diethylaminoethyl 4-amino-3-n-butoxybenzoate hydrochloride. The structural formula of benoxinate hydrochloride may be represented as follows:



Physical Properties: Benoxinate hydrochloride is a white, odorless, crystalline powder. It melts at 157-160°. It is freely soluble in alcohol, chloroform, and water but insoluble in ether. Benoxinate hydrochloride is stable to air, heat, and light. The pH of a 1% solution is 4.0-5.2.

Identity Tests: Dissolve about 0.1 gm. of benoxinate hydrochloride in 10 ml. of water. To 5 ml. of this solution add 1 ml. of silver nitrate T. S.: a white precipitate forms, which is insoluble in nitric acid but soluble in a slight excess of ammonia T. S. (*presence of chloride*). To the second 5 ml. portion of the solution add 0.5 ml. of diluted hydrochloric acid and 0.5 ml. of 10% sodium nitrite, followed by 10 ml. of diluted ammonia solution containing 0.2 gm. of β-naphthol: a red precipitate forms (*presence of a primary aromatic amine*).

Dissolve 0.1 gm. of benoxinate hydrochloride in 10 ml. of water and add sodium hydroxide T. S.: the solution turns milky white and, on standing, drops of oil collect.

Dissolve about 0.2 gm. of benoxinate hydrochloride in 15 ml. of water and add 2.5 ml. of 25% potassium thiocyanate. Allow the milky solution to stand in the cold until precipitation is complete. Filter the mixture, dissolve the residue in the least possible amount of hot water, and allow to crystallize in the cold. Filter the crystals and dry in a vacuum desiccator over phosphorus pentoxide for about 5 hours. The substance melts at 102-105°.

A 0.001% solution, prepared as directed in the spectrophotometric assay for benoxinate hydrochloride, exhibits an ultraviolet absorbance maximum at about 308 mμ [absorptivity (1%, 1 cm.), about 426].

Purity Tests: Dry about 1 gm. of benoxinate hydrochloride, accurately weighed, at 105° for 3 hours: the loss in weight does not exceed 0.5%.

Ignite about 1 gm. of benoxinate hydrochloride, accurately weighed: the residue does not exceed 0.5%.

Assay: (Benoxinate Hydrochloride) Prepare a 0.001% solution of benoxinate hydrochloride as follows. Transfer to a 100 ml. volumetric flask 0.1 gm. of benoxinate hydrochloride, accurately weighed, fill to the mark with water, and mix. Transfer to a second 100 ml. volumetric flask 1 ml. of this solution, fill to the mark with water, and mix. Spectrophotometrically determine the absorbance in a 1 cm. quartz cell at 308 mμ, using water as a blank. The concentration of anhydrous benoxinate hydrochloride in the solution in mg./ml.=absorbance÷42.6. The amount of benoxinate hydrochloride is not less than 95.0 nor more than 105.0%.

(Benoxinate) Transfer to a 60 ml. separatory funnel about 0.2 gm. of benoxinate hydrochloride, accurately weighed. Add 15 ml. of water and 3 ml. of ammonium hydroxide, and extract the liberated base with five 15 ml. portions of ether. Wash the combined ether extracts with 10 ml. of water, extract the water with 10 ml. of ether, and add the ether to the main extract. Evaporate the ether in a stream of air to about 10 ml. Add exactly 20 ml. of 0.1 *N* sulfuric acid, stir well, and heat gently until all the ether is expelled. Cool and titrate the excess acid with 0.1 *N* sodium hydroxide, using methyl red T. S. as an indicator. Each milliliter of 0.1 *N* sulfuric acid consumed is equivalent to 0.03084 gm. of benoxinate and 0.03449 gm. of anhydrous benoxinate hydrochloride. The amount of benoxinate is not less than 85.0 nor more than 93.9%, equivalent to not less than 95.0 nor more than 105.0% of benoxinate hydrochloride.

Dosage Forms of Benoxinate Hydrochloride

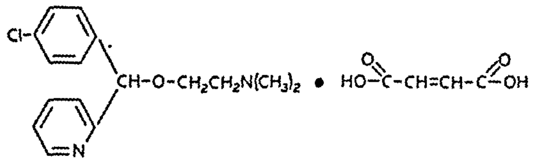
SOLUTIONS. *Physical Properties:* The pH of the solution is 4.0-5.2.

Identity Tests: The solution responds to the identity tests for the active ingredient in the monograph for benoxinate hydrochloride.

Assay: (Benoxinate Hydrochloride) Transfer to a 1,000 ml. volumetric flask an amount of solution, accurately measured, equivalent to about 8 mg. of benoxinate hydrochloride. Fill to the mark with water and mix. Spectrophotometrically determine the absorbance of the solution in a 1 cm. quartz cell at 308 mμ, using water as a blank. The concentration of anhydrous benoxinate hydrochloride in the solution in mg./ml.=absorbance÷42.6. The amount of benoxinate hydrochloride is not less than 95.0 nor more than 105.0% of the labeled amount.

Smith-Dorsey, Division of the Wander Company, cooperated by furnishing scientific data to aid in developing this monograph.

Carbinoxamine Maleate.—$C_{16}H_{19}ClN_2O.C_4H_4O_4$.—M.W. 406.88.—2-[*p*-Chloro-α-(2-dimethylamino-ethoxy)benzyl]pyridine maleate.—The structural formula of carbinoxamine maleate may be represented as follows:



Physical Properties: Carbinoxamine maleate is a white, odorless, bitter, crystalline powder. It melts at 116-119°. It is very soluble in water, freely soluble in alcohol and in chloroform, and very slightly soluble in ether. The pH of a 1% solution is 4.6-5.1.

Identity Tests: Dissolve about 0.1 gm. of carbinoxamine maleate in 2 ml. of water and divide the solution into two equal portions. Dip a clean copper wire in one portion and hold it in the nonluminous portion of the flame of a Bunsen burner: the flame turns green (*presence of chlorine*). To the second portion add 1 ml. of ammonium reineckate T. S.: a pink precipitate forms.

A 0.0025% solution, prepared as directed in the spectrophotometric assay for carbinoxamine maleate, exhibits an ultraviolet absorbance maximum at about 261 mμ [absorptivity (1%, 1 cm.), about 138], a slight inflection at about 255 mμ and a minimum at about 245 mμ.

Purity Tests: Dissolve about 0.3 gm. of carbinoxamine maleate in 2 ml. of alcohol, add 5 drops of chloroform and 0.5 ml. of 50% potassium hydroxide, and heat: a yellow color develops, but no odor of isonitriles (*absence of primary amines*).

Dry about 1 gm. of carbinoxamine maleate, accurately weighed, in a vacuum desiccator over phosphorus pentoxide for 3 hours: the loss in weight does not exceed 0.5%.

Char about 1 gm. of carbinoxamine maleate, accurately weighed, cool the residue, add 1 ml. of sulfuric acid, heat cautiously until evolution of sulfur trioxide ceases, ignite, cool, and weigh: the residue does not exceed 0.1%.

Assay: (Carbinoxamine Maleate) Prepare a 0.0025% solution of carbinoxamine maleate as follows: Transfer to a 100 ml. volumetric flask 0.25 gm. of carbinoxamine maleate, accurately weighed, fill to the mark with water, and mix. Transfer to a second 100 ml. flask 10 ml. of this solution, fill to the mark with water, and mix. Transfer to a third 100 ml. volumetric flask 10 ml. of this last solution, fill to the mark with water, and mix. Spectrophotometrically determine the absorbance in a 1 cm. quartz cell at 261 mμ, using water as a blank. The concentration of anhydrous carbinoxamine maleate in the solution in mg./ml.=absorbance÷13.8. The amount of carbinoxamine maleate is not less than 95.0 nor more than 105.0%.

(Nitrogen) Transfer to a semimicro Kjeldahl flask about 0.15 gm. of carbinoxamine maleate, accurately weighed, and digest it for 4 hours with 7 ml. of sulfuric acid, 2.7 gm. of potassium sulfate, and 0.3 gm. of mercuric oxide. Cool the flask, add 15 ml. of water, cool it again, connect it to an ammonia-distillation apparatus, and add 30 ml. of 40% sodium hydroxide and 10 ml. of 40% sodium thiosulfate. Distil the ammonia into 20 ml. of 4% boric acid. Using a mixed indicator (1:5 methyl red T. S. and bromocresol green T. S.), titrate the solution with 0.05 *N* sulfuric acid. Each milliliter of 0.05 *N* acid is equivalent to 0.0007004 gm. of nitrogen and 0.01017 gm. of anhydrous carbinoxamine maleate. The amount of nitrogen is not less than 6.68 nor more than 7.09%, equivalent to not less than 97.0 nor more than 103.0% of carbinoxamine maleate.

Dosage Forms of Carbinoxamine Maleate

ELIXIRS. *Identity Tests:* The pink precipitate formed on the addition of ammonium reineckate T. S. in the assay for carbinoxamine maleate serves as an identity test for this substance.

Assay: (Carbinoxamine Maleate) Transfer to a 50 ml. volumetric flask a volume of elixir, accurately measured, equivalent to about 20 mg. of carbinoxamine maleate, fill to the mark with 2% v/v sulfuric acid, and mix. Transfer to one of two 50 ml. beakers 20 ml. of this sample solution. To the second beaker add 20 ml. of solution A (0.04% carbinoxamine maleate in 2% v/v sulfuric acid prepared from carbinoxamine maleate, N. N. R.). To both beakers add 5 ml. of 1% v/v sulfuric acid and 5 ml. of ammonium reineckate T. S., and mix. Allow the beakers to stand 1 hour in a refrigerator, then filter with suction each mixture through a medium-porosity sintered-glass funnel. Use portions of the filtrate to transfer each precipitate completely to the funnel, and wash each one with three 2 ml. portions of ice-cold water. Continue drawing air through the filter funnels until the precipitates are dry. Place test tubes under the stems of the funnels in the suction flasks and, with the aid of suction, wash each precipitate into a test tube with five 1 ml. portions of acetone. Transfer the filtrates to 25 ml. volumetric flasks, rinse the test tubes with acetone, fill to the mark with acetone, and mix. Spectrophotometrically determine the absorbances in 1 cm. cells at 525 mμ, using acetone as a blank. The concentration of anhydrous carbinoxamine maleate in the aliquot taken for assay in mg./ml.=0.4 (absorbance of sample ÷ absorbance of solution A). The amount of carbinoxamine maleate is not less than 93.0 nor more than 107.0% of the labeled amount.

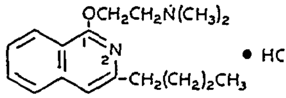
(Alcohol) To 50 ml. of elixir add 50 ml. of water and on the solution run a *U. S. P. alcohol determination.* The amount of alcohol is not less than 85.0 nor more than 115.0% of the labeled amount.

TABLETS. *Identity Tests:* The tablets respond to the spectrophotometric identity test for the active ingredient in the monograph for carbinoxamine maleate.

Assay: (Carbinoxamine Maleate) Weigh 20 tablets and powder them. Transfer to a 100 ml. volumetric flask an amount of powder, accurately weighed, equivalent to about 25 mg. of carbinoxamine maleate, add 50 ml. of water, and shake the flask mechanically for 15 min. Fill to the mark with water and mix. Centrifuge a portion of the solution. Transfer to a second 100 ml. volumetric flask 10 ml. of the clear supernatant solution, fill to the mark with water, and mix. Spectrophotometrically determine the absorbance in a 1 cm. quartz cell at 261 mμ, using water as a blank. The concentration of anhydrous carbinoxamine maleate in the solution in mg./ml.=absorbance÷13.8. The amount of carbinoxamine maleate is not less than 95.0 nor more than 105.0% of the labeled amount.

McNeil Laboratories, Inc., cooperated by furnishing scientific data to aid in developing this monograph.

Dimethisoquin Hydrochloride.—$C_{17}H_{24}N_2O.HCl$.—M.W. 308.86.—3-Butyl-1-(2-dimethylaminoethoxy)-isoquinoline hydrochloride.—The structural formula of dimethisoquin hydrochloride may be represented as follows:



Physical Properties: Dimethisoquin hydrochloride is a white powder with a bitter, numbing taste and a slight aromatic odor. It melts at 144.0-147.0°. It is freely soluble in alcohol and very slightly soluble in ether. The approximate amount that dissolves at 25° in 100 ml. of water is 5 gm. The pH of a 1% solution is 3.5-5.0.

Identity Tests: Dissolve about 0.5 gm. of dimethisoquin hydrochloride in 12 ml. of water, add 1 ml. of sodium hydroxide T. S., and transfer the mixture to a 60 ml. separatory funnel. Extract the liberated base with one 10 ml. portion of ethyl acetate. Dry the extract over anhydrous sodium sulfate for 10 min. Filter the mixture through a dry filter paper and collect the filtrate in a test tube. Add 0.5 ml. of methyl iodide, warm the mixture in a boiling water bath for 3 min., and cool in an ice bath. Filter the mixture, recrystallize the precipitate from anhydrous methanol, and dry the crystals at 105° for 30 min.: the methyl iodide quaternary ammonium salt melts at 179-181°.

A 0.002% solution, prepared as directed in the spectrophotometric assay for dimethisoquin hydrochloride, exhibits ultraviolet absorbance maxima at about 273 mμ [absorptivity (1%, 1 cm.), about 241], 284 mμ [absorptivity (1%, 1 cm.), about 215], 315 mμ [absorptivity (1%, 1 cm.), about 122], and 329 mμ [absorptivity (1%, 1 cm.), about 115]; and minima at about 281 and 300 mμ. The ratio of the absorbances at 274 and 329 mμ is 2.07-2.13.

Purity Tests: Dry about 1 gm. of dimethisoquin hydrochloride accurately weighed, at 105° for 3 hours: the loss in weight does not exceed 2.0%.

Char about 1 gm. of dimethisoquin hydrochloride, accurately weighed, cool the residue, add 1 ml. of sulfuric acid, heat cautiously until evolution of sulfur trioxide ceases, ignite, cool, and weigh: the residue does not exceed 0.05%.

Assay: (Dimethisoquin Hydrochloride) Prepare a 0.002% solution of dimethisoquin hydrochloride as follows. Transfer to a 100 ml. volumetric flask 0.1 gm. of dimethisoquin hydrochloride, accurately weighed, fill to the mark with isopropanol, and mix. Transfer to a second 100 ml. volumetric flask 10 ml. of this solution, fill to the mark with isopropanol, and mix. Transfer to a third 100 ml. volumetric flask 20 ml. of this last solution, fill to the mark with isopropanol, and mix. Spectrophotometrically determine the absorbance in a 1 cm. quartz cell at 329 mμ, using isopropanol as a blank. The concentration of anhydrous dimethisoquin hydrochloride in the solution in mg./ml.=absorbance÷11.5. The amount of dimethisoquin hydrochloride is not less than 95.0 nor more than 105.0%.

(Chloride) Transfer to a 250 ml. glass-stoppered Erlenmeyer flask about 1.0 gm. of dimethisoquin hydrochloride, accurately weighed. Dissolve the powder in 50 ml. of water. Add 50 ml. of 0.1 *N* silver nitrate, accurately measured, 5 ml. of nitric acid, and 3 ml. of nitrobenzene. Mix and titrate the excess silver nitrate with 0.1 *N* ammonium thiocyanate, using 2 ml. of ferric ammonium sulfate T. S. as an indicator. Each milliliter of 0.1 *N* silver nitrate consumed is equivalent to 0.003546 gm. of chloride and 0.03088 gm. of anhydrous dimethisoquin hydrochloride. The amount of chloride is not less than 11.3 nor more than 11.7%, equivalent to not less than 98.0 nor more than 102.0% of dimethisoquin hydrochloride.

Dosage Forms of Dimethisoquin Hydrochloride

LOTIONS. *Identity Tests:* A 0.002% solution, prepared as directed in the spectrophotometric assay for dimethisoquin hydrochloride, exhibits ultraviolet absorbance maxima at about 315 and 329 mμ.

Assay: (Dimethisoquin Hydrochloride) Transfer to a 50 ml. volumetric flask an amount of lotion, accurately weighed, equivalent to about 10 mg. of dimethisoquin hydrochloride, fill to the mark with isopropanol, and mix. Centrifuge a portion of the solution. Transfer to a second 50 ml. volumetric flask 5 ml. of the clear supernatant liquid, fill to the mark with isopropanol, and mix. Spectrophotometrically determine the absorbance in a 1 cm. quartz cell at 329 mμ, using isopropanol as a blank. The concentration of anhydrous dimethisoquin hydrochloride in the solution in mg./ml.=absorbance÷11.5. The amount of dimethisoquin hydrochloride is not less than 90.0% of the labeled amount.

OINTMENTS. *Identity Tests:* The ointment responds to the spectrophotometric identity test for the active ingredient in the monograph for dimethisoquin hydrochloride.

Assay: (Dimethisoquin Hydrochloride) Transfer to a 50 ml. volumetric flask an amount of ointment, accurately weighed, equivalent to about 10 mg. of dimethisoquin hydrochloride, fill to the mark with isopropanol, and mix. Centrifuge a portion of the solution, if necessary. Transfer to a second 50 ml. volumetric flask *5 ml. of clear supernatant solution, fill to mark with* isopropanol, and mix. Spectrophotometrically determine absorbance in a 1 cm. quartz cell at 329 mμ, using isopropanol as a blank. The concentration of anhydrous dimethisoquin hydrochloride in the solution in mg./ml.=absorbance÷11.5. The amount of dimethisoquin hydrochloride is not less than 95.0 nor more than 105.0% of the labeled amount.

Smith, Kline & French Laboratories cooperated by furnishing scientific data to aid in developing this monograph.

Erythromycin Ethyl Carbonate.—Erythromycin ethyl carbonate is the ethyl carbonate ester of erythromycin, an antibiotic produced by the growth of Streptomyces erythreus Waksman. The chemical structure of erythromycin ethyl carbonate has not been established.

Physical Properties: Erythromycin ethyl carbonate is a white, practically odorless powder having a very slightly bitter taste. It is freely soluble in alcohol and practically insoluble in water. The amount that dissolves in ether to form 100 ml. of solution is about 5 gm.

Identity Tests: Transfer to a test tube about 10 mg. of erythromycin ethyl carbonate and add about 2 ml. of hydrochloric acid: a yellow color appears and changes to dark greenish yellow.

Transfer to a test tube about 5 mg. of erythromycin ethyl carbonate, and add 5 ml. of sulfuric acid and shake gently: a red-brown color appears.

A 2% solution of erythromycin ethyl carbonate in alcohol is levorotatory.

Purity Tests: On about 0.5 gm. of erythromycin ethyl carbonate, accurately weighed, run a *U. S. P. Karl Fischer test for water:* the amount of moisture does not exceed 5.0%.

Char about 0.5 gm. of erythromycin ethyl carbonate, accurately weighed, cool the residue, add 1 ml. of sulfuric acid, heat cautiously until evolution of sulfur trioxide ceases, ignite, cool, and weigh: the residue does not exceed 1.0%.

Assay: (Erythromycin) Transfer to a 100 ml. volumetric flask 27.4 mg. of erythromycin ethyl carbonate, accurately weighed, and add 40 ml. of methanol. Fill to the mark with water and mix. Allow the solution to stand for 48 hours. Transfer to a 500 ml. volumetric flask 2 ml. of the solution and fill to the mark with 0.1 M phosphate buffer, pH 8.0, to obtain a solution containing in each milliliter the equivalent of about 1 mcg. of erythromycin. Proceed as directed in the *U. S. P. erythromycin microbial assay.* The amount of erythromycin activity is not less than 85.0%.

Dosage Forms of Erythromycin Ethyl Carbonate

POWDER. *Identity Tests:* Erythromycin ethyl carbonate is supplied as a mixture of solids to which water is added before use to prepare a suspension. With 50 ml. of chloroform extract an amount of powder equivalent to about 0.1 gm. of erythromycin ethyl carbonate. Filter the chloroform through a dry filter paper and evaporate the filtrate to dryness in a current of warm air. The residue responds to the identity tests for the active ingredient in the monograph for erythromycin ethyl carbonate.

Assay: (Erythromycin) Transfer the entire contents of the container to a 100 ml. volumetric flask and add sufficient distilled water to make 100 ml. Mix thoroughly and transfer an aliquot portion, equivalent to 25 mg. of erythromycin, to a second 100 ml. volumetric flask, fill to the mark with water and mix. Transfer 2 ml. of the solution to a 500 ml. volumetric flask, fill to the mark with 0.1 M phosphate buffer, pH 8.0, to obtain a solution containing in each milliliter the equivalent of about 1 mcg. of erythromycin. Proceed as directed in the *U. S. P. erythromycin microbial assay.* The amount of erythromycin activity is not less than 85.0% of the labeled amount.

Eli Lilly & Company cooperated by furnishing scientific data to aid in developing this monograph.

Erythromycin Lactobionate.—Erythromycin lactobionate is the lactobionate salt of erythromycin, an antibiotic substance produced by the growth of Streptomyces erythreus Waksman. The chemical structure of erythromycin lactobionate has not been established.

Physical Properties: Erythromycin lactobionate is a white, practically odorless powder. It is freely soluble in water and alcohol, and slightly soluble in ether. The pH of a 2% solution is 6.0-7.5.

Identity Tests: Transfer to a test tube about 10 mg. of erythromycin lactobionate and add about 2 ml. of hydrochloric acid: a yellow color appears and changes to a dark greenish yellow.

Transfer to test tube about 5 mg. of erythromycin lactobionate and add 5 ml. of sulfuric acid: a red-brown color appears.

Transfer to a test tube about 50 mg. of erythromycin lactobionate and dissolve it in about 5 ml. of water. Add about 5 ml. of a saturated solution of picric acid, allow to stand for about 10 min., and filter. Wash the precipitate with water and dry in a vacuum desiccator: the picrate formed melts at 168-175° (*Caution! Picrates may be explosive*).

A 2% solution of erythromycin lactobionate in water is levorotatory.

Purity Tests: On about 0.5 gm. of erythromycin lactobionate, accurately weighed, run a *U. S. P. Karl Fischer test for water:* the amount of moisture does not exceed 5.0%.

Char about 0.5 gm. of erythromycin lactobionate, accurately weighed, cool the residue, add 1 ml. of sulfuric acid, heat cautiously until evolution of sulfur trioxide ceases, ignite, cool, and weigh: the residue does not exceed 2.0%.

Assay: (Erythromycin) Transfer to a 100 ml. volumetric flask 37.1 mg. of erythromycin lactobionate, accurately weighed, fill to the mark with water, and mix. Transfer 2 ml. of the solution to a 500 ml. volumetric flask and fill to the mark with 0.1 M phosphate buffer, pH 8.0, to obtain the assay preparation containing in each milliliter the equivalent of 1 mcg. of erythromycin as the lactobionate. Proceed as directed in the *U. S. P. erythromycin microbial assay.* The amount of anhydrous erythromycin lactobionate is not less than 85.0%.

Dosage Forms of Erythromycin Lactobionate

POWDER. *Identity Tests:* The powder responds to the identity tests for the active ingredient in the monograph for erythromycin lactobionate.

Assay: (Erythromycin) Transfer to a 100 ml. volumetric flask an amount of powder, accurately weighed, equivalent to 25 mg. of erythromycin, fill to the mark with water, and mix. Transfer to a 500 ml. volumetric flask 2 ml. of the solution and fill to the mark with 0.1 M phosphate buffer, pH 8.0, to obtain the assay solution containing in each milliliter the equivalent of about 1 mcg. of erythromycin as the lactobionate. Proceed as directed in the *U. S. P. erythromycin microbial assay.* The amount of erythromycin lactobionate is not less than 85.0% of the labeled amount.

Abbott Laboratories cooperated by furnishing scientific data to aid in developing this monograph.

THE JOURNAL
OF THE AMERICAN MEDICAL ASSOCIATION
Edited Under the Direction of the Board of Trustees

Editor and Managing Publisher . . AUSTIN SMITH, M.D.
Associate Editor . . . . JOHNSON F. HAMMOND, M.D.
Editor for Medical Literature Abstracts . GEORGE HALPERIN, M.D.
Assistant Editor . . . . WAYNE G. BRANDSTADT, M.D.

Subscription price . . Fifteen dollars per annum in advance
Cable Address . . . . "Medic, Chicago"

ACNE VULGARIS

GUEST EDITORIAL

Stephen Rothman, M.D.

There are many pathological conditions that never endanger but often ruin life. Foremost among these "harmless" conditions is acne of the adolescent, which in its more serious forms extends well into the third decade of life and in its scarring variety may leave unsightly pockmarks visible through a lifetime. In our age, which glorifies the unblemished milky complexion in women, and the smooth, clean-shaven face in men, the psychological, economic, and social implications of acne, as indicated in the report to the Committee on Cosmetics in this issue of THE JOURNAL (page 1117), are great.

Progress has been made during the last decade in a better understanding of the local pathogenesis and hormonal constellation of seborrhea and acne. Nutritional and climatic influences have become better appreciated, and the role of bacterial infection has been analyzed; but real progress in therapy is still missing, possibly with the remarkable exception of the perfected methods of treating pitted scars by mechanical means. While the role of "androgenic" hormonal effects on sebaceous glands and cornification of the follicular openings is fairly well understood in both men and women, the main hurdle in the therapeutic use of this knowledge is that the dosage of estrogens required to counteract the acnegenic effects is so high as not to be safe. Whether small and safe doses of estrogens, administered systemically or locally, are effective at all is still a controversial question. Therapy with vitamin A has a good rational foundation because of its well-established antikeratinizing action, but, again, its true therapeutic effectiveness is doubted by many. Modern antibiotics are often valuable in combating the pustular elements of acne, but they do not solve the basic problem.

Thus the main body of our therapeutic armamentarium is still local treatment on an empirical basis as it has been practiced for almost 100 years, and, among topically applied chemicals, sulfur is still the most effective agent. Sulfur in coarse particles in any vehicle is rather irritating to the skin. The precipitated sulfur of the United States Pharmacopeia, however, has an optimal particle size that can be incorporated uniformly into any kind of vehicle and is effective without being unduly irritating. Further decrease of the particle size to submicroscopic (colloidal) dimensions has been claimed to be even more advantageous; organic sulfur compounds have not shown any superior action. Sulfur enters the skin easily and is reduced there to sulfide and hydrosulfide ions. In this form it exerts its keratolytic and sebum-reducing effects. Salicylic acid and resorcinol often added to sulfur preparations for local application act mainly as keratolytics and pacemakers for sulfur. Ultraviolet rays have a similar action, in addition to increasing arterial blood flow.

Commercial preparations containing sulfur, salicylic acid, and resorcinol are widely available; however, as is often the case with empirical therapy, the physician prefers to choose and to change concentrations and vehicles individually, according to the type and severity of the case. Here the dermatologist practices the art rather than the science of his profession. He can do this quite successfully if he has had broad experience, provided this experience is based on close, sound, and unbiased observation; but even the most experienced, talented, and ingenious therapists will have patients who do not respond satisfactorily to empirical treatment methods.

Further basic and clinical research is badly needed in this field. Obviously, it will take time until we shall have a "routine" therapy that will not fail in any case. Until then the practitioner should learn not to minimize the significance of acne and should not try to console the patient with such platitudes as "this is nothing, every youngster must go through it" or with untrue statements such as "you will be all right as soon as you get married." He rather should encourage the patient to have treatment by a specialist. In the great majority of cases this will yield satisfactory results.

THE HOUSSAY PHENOMENON IN MAN

Simmonds [1] in 1914 described a patient with clinical symptoms suggestive of hypopituitarism and postmortem lesions the essential feature of which was the destruction of the pituitary. The syndrome represented a condition of insufficiency of the anterior lobe of the pituitary. He believed that the cause of the syndrome was the embolic closure of the arterial blood supply to the gland.

Sheehan [2] in 1938 described massive focal atrophy of the anterior lobe of the pituitary, which occurs only in women and is nearly always of postpartum origin. Hemorrhage and collapse at delivery occurred in all of his cases. Again in 1949 [3] he reported on autopsies in 95 cases culled from the literature and considered by him as examples of severe chronic hypopituitarism. The characteristic features of the chronic type of hypopituitarism are a history of severe circulatory collapse as a result of hemorrhage and shock at a delivery, atrophy of the gonads and genital tract with amenorrhea, impotence and loss of libido, loss of pubic and axillary hair, increased sensitivity to cold, weakness, mental torpidity, insulin sensitivity, and a tendency to spontaneous hypoglycemia and coma. The number of cases of hypopituitarism from various lesions involving the pituitary has considerably increased in the last decade.

---

[1] Simmonds, M.: Über Hypophysisschwund mit tödlichem Ausgang, Deutsche med. Wchnschr. 40: 322, 1914.

[2] Sheehan, H. L.: Post-Partum Necrosis of the Anterior Pituitary, Edinburgh M. J. 45: 13 (March) 1938.

[3] Sheehan, H. L., and Summers, V. K.: The Syndrome of Hypopituitarism, Quart. J. Med. 18: 319 (Oct.) 1949.

In 1930 Houssay and Biasotti[4] demonstrated in experiments the mutual antagonism between the effects of insulin and an anterior pituitary hormone upon the concentration of blood glucose. Houssay showed that diabetes induced in an animal by a pancreatectomy can be alleviated by a hypophysectomy. The same antagonism exists in man. The occurrence, however, of the so-called Houssay phenomenon in man has been rare. A recent review by Harvey and de Klerk[5] lists only 11 cases, to which they add 3 of their own. Of these 11, nine have died and have come to autopsy. In eight massive infarction of the pituitary was found. Balo, Calder, Lyall and Innes, Kotte and Vonderahe, Marzullo and Handelsman, Rothfeld and Jonas, and Williams and Brenner each have contributed to the literature a single case of Houssay phenomenon in man.

Harvey and de Klerk point out that the common complaint in all of these patients was severe headache. The complaint was made at the time infarction must have occurred in the pituitary. This was followed by attacks of hypoglycemia. Hypoglycemia continued despite the reduction in insulin dosage. The symptoms of hypoglycemia were severe and refractory to treatment with intravenously given glucose.

Pituitary insufficiency should be suspected in the diabetic whose requirement for insulin decreases very rapidly or if insulin shock occurs with frequency and hypoglycemia is resistant to the intravenous administration of glucose. The importance of recognition of the Houssay phenomenon, as pointed out by Harvey and de Klerk, is quite evident, for if insulin administration is continued in the diabetic who develops panhypopituitarism, fatal hypoglycemia may result. If the condition is recognized, treatment with adrenal cortical, thyroid, and estrogenic hormones will overcome many of the secondary effects of the disorder.

FIFTH NATIONAL CONFERENCE ON PHYSICIANS AND SCHOOLS

The fifth National Conference on Physicians and Schools was held a few weeks ago at Moraine-on-the-Lake Hotel, Highland Park, Ill. Some 200 representative of state departments of health and education, state medical associations, and national voluntary health agencies participated. Held every other year, the conference is designed to stimulate agreement on joint action by medicine, public health, and education to bring about effective health services for school children. The meetings are sponsored by the American Medical Association and conducted through its Bureau of Health Education.

Leading speakers at general sessions were Surgeon General Leonard Scheele, Public Health Service, and Commissioner Samuel Brownell, Office of Education, both of the Department of Health, Education, and Welfare; Dr. Elmer Hess, Erie, Pa., A. M. A. President; Dr. George Lull, A. M. A. Secretary and General Manager; and Mrs. Rollin Brown, Los Angeles, president of the National Congress of Parents and Teachers. Speakers agreed on a number of important points, the following ones might be singled out for special mention: The first responsibility for the health of children rests with parents; the school and other community agencies supplement and reinforce the efforts of the home. Accidents and mental health are today's major child health problems; these must be met with the same scientific approaches that have brought other important health advances. Except for general policies, no single pattern for the various aspects of the school health program can be suggested; each community needs to make adaptations in terms of local conditions, facilities, and personnel.

During the conference a number of discussion groups working with expert consultants considered a number of special problems. It is difficult to generalize their conclusions except in terms of the summaries presented at the end of the conference by three representative reporters: one for medicine, John Reichert, M.D., practicing physician, Chicago; one for education, John Miller, Ed.D., superintendent of schools, Great Neck, N. Y.; and one for public health, John Shackelford, M.D., director of local health services, Oklahoma State Health Department. This panel pointed up the need for a "team approach" in the development of the school health program. The function of the professional groups concerned, they said, is to work together effectively to assist parents to carry out their child health obligations. One of the chief accomplishments of the conference, the panel felt, was better delineation of professional responsibilities of medicine, education, and public health in the school health program. Perhaps the most important outcome, they said, was "an increased respect among the various disciplines for the professional competence and integrity of the others."

Elsewhere in this issue (see page 1126) a preliminary report on the conference is given; more comprehensive proceedings will be published later. But even the brief discussion above is sufficient to demonstrate the importance of medical participation in the formulation and development of school health programs. The House of Delegates undoubtedly had this in mind when in 1952 at the Denver meeting of the American Medical Association they commended similar conferences and other leadership efforts in school health to local and state medical societies and associations. After the fifth National Conference on Physicians and Schools the time is especially opportune. General policies for school health consistent with sound principles and practices in medicine, education, and public health have been agreed upon. In the final analysis, however, these must have their specific and practical implementation in our local schools and communities.

---

[4] Houssay, B. A., and Biasotti, A.: La diabetes pancréatica de los perros hipofisoprivos, Rev. Soc. argent. de biol. 6: 251, 1930.

[5] Harvey, J. C., and de Klerk, J.: The Houssay Phenomenon in Man, Am. J. Med. 19: 327 (Sept.) 1955.

ORGANIZATION SECTION

SCHOOL CONFERENCE ON HEALTH PROBLEMS

The emergence of the medical, education, and public health professions as a functioning "team" was a major theme of the fifth National Conference on Physicians and Schools, held at Highland Park, Ill., Oct. 12-14. More than 200 physicians, public health officials, educators, and representatives of related organizations participated in round-table discussions at the conference, sponsored biannually by the American Medical Association and its Bureau of Health Education. Thirty-four states and the District of Columbia were represented by the conferees.

Viewpoints of education, public health, medicine, and the home were shown at the opening session by Samuel Brownell, Ph.D., commissioner, Office of Education, and Dr. Leonard Scheele, surgeon general, Public Health Service, both of the Department of Health, Education, and Welfare; Dr. George F. Lull, Secretary and General Manager of the A. M. A., and Mrs. Rollin Brown, president, National Congress of Parents and Teachers. These speakers agreed that more home and community participation and more emphasis on mental health and accident prevention is needed.

Dr. Scheele said at present rates it is estimated that "one out of every 12 children will spend some time in mental institutions. Among children 5-14 years old 40 per cent of all deaths are due to accidents." He said the Department of Health, Education and Welfare wishes to know what specific help the federal agencies can give states and communities. Such programs, he noted, would have to be geared to fit individual localities and situations. Dr. Lull said that "by every solid measure of health" our youth is healthier than ever before: longer years of life are in store; their chances of living to school age are better than at any previous time; their chances of living through the school years have reached an all-time high; youngsters are bigger and heavier on the average than ever; and gains against disease have been "phenomenal." Except for accidents, which are responsible for more deaths and disabilities among children than the next several causes combined, he said, we have made "excellent progress" on all fronts. He outlined a five-point program for improving school health, including: an accident prevention program and procedures to meet emergencies at school; preventive work in mental health; discovery and follow-up of children with health problems; full use of the school's special opportunities for health education; and interpretation of health needs and services to parents and other adults.

Dr. Brownell listed a number of major improvements resulting from cooperation among educators and health specialists, including gains in extent and coverage of health services; better health education programs in preparing teachers; improvement of health text books, films, teacher's guides, and other educational material; major changes in standards of lighting, heating, ventilation, acoustics, sanitation and provision of health, athletic, and washing facilities; great increases in enrollment of children in health and physical education classes; increased health awareness and education of parents and public; and expanded knowledge of how children grow and learn. In any community, medical and dental services, water supply and waste disposal, restaurant sanitation, adult health education, advertising mediums and hundreds of other forces all "make their impact on the school child's health—and that of his family and teachers," Dr. Brownell said. "These forces also influence directly or indirectly most of his educational experiences." He said interrelationships between professional persons and others involved in the school child's health must be "real and vital" if all children are to be best served.

Mrs. Brown described the mushrooming interest of the Parents and Teachers Congress in various aspects of the child's welfare and noted that the entire community is involved in this question. "Health really is everybody's business," she said. "Programs of any kind will fail unless they have public approval. Like radio and TV, you can always turn off a program if it bores you or propagandizes. But everyone has a real interest in something to which he can devote his own thought, time and energy—even more than his money."

TWO MAJOR JOBS

Dr. Elmer Hess, Erie, Pa., President of the A. M. A., told participants that two of their biggest jobs should be in cutting down street and highway accidents and helping the child with emotional or mental problems. He said teachers must first discover and then help the child with such difficulties, because some children just "can't take" usual educational methods. "All children are not created mentally and physically equal," he said, "We must find the one who has problems, spot him early, and guide him if possible" so he is "kept from growing up a disgrace, a menace, or worse still, the forgotten soul in a mental institution." Three ways Dr. Hess suggested to combat highway accidents were: to encourage auto manufacturers to install safety devices to such an extent that in an accident, injuries would be reduced to a minimum; insist on law enforcement, including restriction on too-slow drivers as well as speeding ones; and "most important," urge that no one be allowed to drive who is not in perfect mental and physical health.

REPORT OF CONCLUSIONS

At the formal session closing the conference, a new approach to a general report on its activities was used. "Roving reporters" who had visited the various discussion groups gave highlights from each group and then a general "summing up." The reporters, representing the three major fields involved—medicine, public health, and education—were Dr. John Miller, Ed.D., superintendent of schools, Great Neck, N. Y.; Dr. John Shackleford, Oklahoma state Department of Health; and Dr. John

Reichert, American Academy of Pediatrics. They noted that one of the major feelings of the conference was "an increased respect among the various disciplines for the professional competence and integrity of the others." Discussing the central theme, a "team approach," they said the function of the interrelated professional groups, working cooperatively, is to help parents in discharging their responsibility in the proper care of their children. The feeling was that the relations between members of the team should be such that any member would feel free to initiate action or propose changes. A big step forward in the conference, they said, was the spelling out in more detail of areas of responsibility of the members of the team. They also said the various groups, in their discussions, seemed to be getting into an important concept—that of the "total child."

The child, it appeared to conferees, is not just a physical entity "who shows up in school each day" but a human being with physical, emotional, social, and moral aspects that those who deal with children must recognize and guide. The child also is not just a school child but member of family and a community with problems in each area. The team therefore is ideally representative of the entire community of the child's environment.

Some of the highlights of the 10 discussion groups and some conclusions drawn by each group follow. The group discussing "Use of Health Records," under the chairmanship of Dr. A. B. Rosenfield, Minnesota Department of Health, Minneapolis, said there should be cumulative health records on each school child, including teacher observations, history of illness and immunization, and recommendations from the physician. The record could be used as a tool for nurse-teacher conferences and referrals. This group also urged "an intelligent interchange of information with the consent of the family, on a professional and confidential basis."

The teacher—who represents the known and familiar—should play the central role in preparation for and handling of disasters at school, according to a group which had as its chairman August Pritzlaff, Chicago Board of Education. Since panic results largely from the unknown, any plan for disaster should require that the teacher remain in control of her pupils. Preparations involve routine procedures, psychological adjustment, and cooperation with civil defense, fire authorities, the medical profession and others.

Comics, Movies, and Television.—An interesting highlight of the discussion group periods was the appearance of four teen-agers from a nearby school, in the section considering the health aspects of comics, movies, and television, directed by Elizabeth Avery, Ph.D., Washington, American Association of Health, Physical Education and Recreation. The four students, who were exceptionally poised and enthusiastic in answering the discussants' questions, seemed to feel that perhaps "the grown-ups" were worrying too much about the problem. They agreed that if teen-agers have enough interesting and important activities (such as sports, musical groups, student and civic activities) the mass entertainment mediums will hold only an appropriate place. They admitted that the elementary school level problem is different and that some of the younger boys and girls spend an inordinate amount of time at television or comic books.

The group generally agreed—assuming that accuurate studies on the problem are done—that guides for parents could be developed to use in handling their own family situations. They said the problem is largely one of "too much time spent in sedentary entertainment," regardless of the merits of the television programs or comic books. However, they suggested that programs for young people might take advantage of opportunities to present information on health and safety. Joint action by parent groups with the assistance and guidance of the school, public health, and medicine is needed to analyze good and bad entertainment and to budget the child's time within a variety of wholesome activities, the group said.

Athletic Activities.—Athletic activities and their emotional aspects were discussed by the group with Dr. George Maksim, District of Columbia Medical Association, as chairman. They suggested that a different approach is needed for children up to 12 and those over 12. In the young group, athletic activities should: (1) be adapted to growth patterns of the individual, (2) encourage maximum participation by breaking big groups up into small ones, (3) involve both cooperation and competition adapted to the age and maturity of the pupils, (4) afford opportunity for the child to succeed, (5) reduce unfavorable emotional responses to a minimum, and (6) recognize motivations of the pupils. For the older groups, activities should: (1) help students develop a sense of values, independence, and cooperation, (2) recognize characteristics of adolescence, (3) be comprehensive, including individual, group and coeducational activities, (4) reduce unfavorable emotional responses to a minimum, (5) be on an intramural basis in the junior high schools and for girls in the senior high schools, (6) keep exhibitionism at a minimum, (7) be supported by sound administrative practices, and (8) be an integral part of the educational program and be so financed. The group added a note that motivations of adults planning sports programs for children should be carefully studied.

Health Counseling and Personality Problems.—Another group defined its subject, health counseling, as "the continuous process of helping the pupil and parents to gain insight and understanding into the status of the pupil's mental and emotional health." With Mabel Rugen, Ph.D., of the University of Michigan, as chairman, the group said counseling for healthful living should be available to all students, and should be coordinated with other counseling programs. Urging that counseling should be available first to those who have apparent need for it but also to those who do not appear to need help, the group commented that "nonrecognition of a problem is no guarantee that none exists."

The child as a "totality" was an important consideration of the group discussing personality and behavior problems, with Dr. C. Morley Sellery, Los Angeles City Board of Education, as chairman. It said such problems have an impact on the "whole child" and on the educational program. The teacher as a "team member" must be broadly educated, especially in child growth and development, so that he may prevent, recognize, and solve problems within his competence. Both parents and prospective parents should be educated to assume their responsibilities, while all groups concerned with emotional health should arrange for the proper professional interchange of information. Every community should have available child guidance facilities, the group said, and regional and state groups should encourage setting up of study groups on emotional health problems.

Cooperation and Activity.—Effective home-school cooperation is important because the child's needs are better met and the administrator can relate education to the parents' objectives and community needs, according to the group headed by Dr. Guy N. Magness, Missouri State Medical Association. This group said communication must be two-way: the health of the child is a family responsibility; and parents, teachers, and physicians must develop mutual understanding of their responsibilities and goals. The group noted that home visits by teacher and nurse are of great value.

"Activity is the law of childhood," one group said, and "direction of this activity in accordance with the child's developmental needs is the responsibility of all of us who are concerned with guiding him into optimum health and maturity." This group, headed by Dr. Edward A. Piszczek, of the Suburban (Cook County) Tuberculosis District, said: 1. Activity must be balanced. 2. It must be in keeping with the child's physical, emotional and social level of development. 3. It must be adapted to his interests, abilities, and temperaments, since what may be an underload for one can be an overload for another. "Firm, kind guidance, not catering to whims, is needed." 4. Underactivity can be as harmful as overactivity. 5. Activities of the handicapped must be modified by consultation with medical advisors and other specialists. 6. The gifted child needs careful and individual evaluation of his health needs. 7. The proper diagnosis of activity needs and problems can be arrived at only by close consultation among teachers, parents, and medical advisors.

School Personnel and the Physician.—The group discussing preparation of school personnel in health, directed by Clifford L. Brownell, Ph.D., of Teacher's College, Columbia, N. Y., in supporting recommendations of previous conferences suggested that all elementary teachers should have the following preparation: (1) adequate information on what to look for in the daily observance of the health status of children, (2) screening tests, in cooperation with local specialists, (3) two-way cooperation between education and medicine, and (4) health education courses developed with representatives of local physicians on curriculum committees.

More practicing physicians need to be involved in the school health program, according to a group headed by Dr. Albert C. Daniels, California Medical Association, San Francisco, which discussed the personal physician and school health. The group said essentials in cooperation were to work through the local or state medical and dental societies and for the school to adopt the accepted local medical practices. It urged development of committees providing a two-way orientation opportunity for the practicing physician, the school, the others involved.

NEED FOR DIRECTION

The closing speaker for the conference, the Rev. Rex Knowles, pastor of the Presbyterian-Congregational Fellowship at the University of Nebraska, said teachers and others should not worry so much about children going wrong as about their "not going anywhere at all." He said young people now are often "spiritually unemployed" and need direction in knowing "who they are working for and who they are." "Isn't it the responsibility of the schools to find students who are blind to their potentials, the needs of the world, and how their potentials can meet these needs," he said. "The success pattern of our schools forgets 'the small' and doesn't give it a chance to hold up its head. These youngsters can be told that each person is needed, each living a little, dying a little and doing a little. They need to know that their contributions, however small, we greatly need."

Among A. M. A. participants in the program were Dr. W. W. Bauer, Director of the Bureau of Health Education; Fred V. Hein, Ph.D., and Dr. Donald A. Dukelow, consultants in health and fitness for the Bureau; Dr. William W. Bolton, associate director of the Bureau, and Leo E. Brown, Director of Public Relations, all from Chicago.

NEW ASSISTANT TO COUNCIL SECRETARY

The Board of Trustees recently approved the appointment of Dr. Glen R. Shepherd of Kansas City, Kan., as assistant secretary of the Council on Medical Education and Hospitals. Dr. Shepherd will spearhead the Council's activities in the area of postgraduate medical education. Since 1947, Dr. Shepherd has been on the faculty of the School of Medicine of the University of Kansas and served as assistant to the dean since 1949. In announcing the appointment, Dr. Edward L. Turner, Council Secretary, said that "the increasing interest and challenge in the field of postgraduate medical education makes it important that the Council actively follow through on the findings of the recent survey in this field. Further review and study with recommendations as to the best ways and means of aiding postgraduate medical education will be part of Dr. Shepherd's assignment."

"MARCH OF MEDICINE" ON TELEVISION

Original plans for the fall series of "March of Medicine" television programs announced last summer have been changed. Instead of three, there will be two shows in this series. The next presentation, originating from the American Medical Association's Clinical Session in Boston, will be a report on alcoholism. The latest tabulation of audiences seeing A. M. A. television films "Operation Herbert" and "A Life to Save" total 7,500,000 and 9,100,000 viewers respectively.

MEDICAL NEWS

ALABAMA

Physicians Invited to Meeting at Fort Rucker.—Physicians practicing within 100 miles or so of the Army Aviation Center, Fort Rucker, Ala., are cordially invited to a medical meeting in the fort's hospital mess hall (building no. 8766) Thursday evening, Nov. 17. The speakers will be Col. William H. Byrne, flight surgeon, whose subject will be "Medical Selection and Utilization of Helicopter Pilots," and Dr. J. F. Hammond, of Chicago, Associate Editor of THE JOURNAL, who will give an illustrated talk on "Some of the Activities of the American Medical Association." A fellowship hour at 6:30 p. m. and dinner ($1.00) at 7 p. m. will precede the program, which begins at 8 p. m.

ARIZONA

Southwestern Medical Association.—The annual meeting of this association (Dr. Joseph Bank, Phoenix, president) will be held in conjunction with the second annual Conference on Recent Advances in Medicine of the Maricopa County Medical Society (Dr. Carlos C. Craig, Phoenix, president), at the Hotel Westward Ho, Phoenix, Nov. 16-18. The program includes the following first presentations by guest speakers:

Prophylaxis and Treatment of Complications Following Biliary Tract Surgery, L. Kraeer Ferguson, Philadelphia.
The Adrenals, William E. Ehrich, Philadelphia.
Clinical Disturbances of the Pituitary Gland, Edward H. Rynearson, Rochester, Minn.
Treatment of Atrial and Septal Defects, John W. Kirklin, Rochester, Minn.
Essential Pulmonary Hypertension, Hans H. Hecht, Salt Lake City.
Hip Disorders in Children, Ignacio V. Ponseti, Iowa City.
Fungous Diseases, J. Walter Wilson, Los Angeles.
Effect of Drugs on Pulmonary Circulation and on the Control of Respiration, John L. Webb, Ph.D., Los Angeles.
Clinical Observations of the Value of Pulmonary Function Studies, Reginald H. Smart, Los Angeles.
Cataract Surgery, Kenneth L. Roper, Chicago.

There will be symposiums on regional enteritis and enterocolitis; orientation of massive bleeding from the upper alimentary tract; experience with subtotal gastrectomy in the management of peptic ulcer—postgastrectomy sequelae; prevention of malignant neoplasm of the gastrointestinal tract; and surgical evaluation of acquired heart disease.

CALIFORNIA

The Herzstein Lectures.—Dr. Howard A. Rusk, chairman of physical medicine and rehabilitation, New York University-Bellevue Medical Center, New York, will have as his general subject for the Herzstein Lectures "Medicine's Number One Problem." The University of California School of Medicine, San Francisco, will sponsor the series in the May T. Morrison Auditorium, California Academy of Sciences, Golden Gate Park, Nov. 14-16. Dr. Rusk will discuss on Monday "The Dynamics and Organization of a Modern Rehabilitation"; on Tuesday, "Clinical Problems in Rehabilitation"; and on Wednesday, "The Challenge of Gerontology."

Benefit Concert by Doctors' Symphony.—The second annual concert of the Los Angeles Doctors' Symphony Orchestra will be presented for the benefit of the Los Angeles County Physicians Aid Association Nov. 19, 8:30 p. m., in the Philharmonic Auditorium. The orchestra, composed of nearly 100 members, is under the direction of William Van den Burg, former assistant conductor of the Philadelphia Orchestra. Concert master is Dr. Benjamin Gross, Beverly Hills, who formerly held a similar position in the Louisville Symphony Orchestra. Assistant concert master is Dr. Reuben Straus, Burbank, who is also president of the symphony organization. Dr. Jerome M. Kummer, Santa Monica, is vice-president, and Dr. Elizabeth Mason Hohl, Los Angeles, president of the Physicians Aid Association, serves as impressario for the orchestra. Information may be obtained from Mrs. Virginia L. Brown, Executive Secretary of the Physicians Aid Association, 1234 N. Vermont Ave., Los Angeles 29, NOrmandy 3-1062.

Los Angeles Midwinter Medical Convention.—"Eighty-Five Years of Medical Progress" will be the theme of the Los Angeles Midwinter Medical Convention, which will be held Jan. 3-5, 1956, at the Biltmore Hotel and the Philharmonic Auditorium under the auspices of the Los Angeles County Medical Association (Dr. Ewing L. Turner, president). A half day will be devoted to each of the following subjects: "Medicine's Role in the Atomic Age," "Modern Concepts in the Utilization of Blood and Blood Products," "Diagnosis and Treatment of Neoplastic Diseases," "Preventive Medicine," "The Use and Misuse of Miracle Drugs," and "Management of the Geriatric Patient." Panel discussion moderators include: Karl Meyer, Ph.D., San Francisco; Dr. George T. Pack, New York; Dr. Oscar B. Hunter, Washington, D. C.; Dr. Edmund V. Cowdry, St. Louis; Dr. Perrin H. Long, Brooklyn, N. Y.; and Dr. Stafford L. Warren, Los Angeles. Dr. Elmer Hess, Erie, Pa., President of the American Medical Association, will speak at the anniversary dinner Tuesday in the Biltmore Bowl. Among the participants in the anniversary convention will be Dr. Dwight H. Murray, Napa, A. M. A. President-Elect. A 10 day cavalcade of health and medical progress (Jan. 6-15) will be staged at the Shrine Auditorium and Convention Hall. The annual Tournament of Roses festivities in Pasadena, including the Rose Parade and the Rose Bowl football game on New Year's Day, precede the midwinter convention.

CONNECTICUT

Society News.—The Yale Medical Society will present the following program at 8:15 p. m., Nov. 14, in the Fitkin Amphitheatre, Yale-New Haven Medical Center:

Chelation in Contrast Radiography, Robert Shapiro, New Haven.
Epidemiology of Enteric Virus Infections, Joseph L. Melnick, Philadelphia.
Fate of Plasma Lipids in Vascular and Avascular Connective Tissue, Levin L. Waters, New Haven.
Pathogenesis of Fever, Elisha Atkins, St. Louis.

DISTRICT OF COLUMBIA

University News.—The Gamma chapter of Alpha Omega Alpha was recently installed at the Howard University College of Medicine, Washington, D. C. The charter was presented by Dr. Walter L. Bierring, Des Moines, Iowa, national president of Alpha Omega Alpha and a Past-President of the American Medical Association. The initiates were charged and presented keys by Dr. Josiah J. Moore, Chicago, national secretary-treasurer of Alpha Omega Alpha and A. M. A. Treasurer. The address of the evening was delivered by Aura E. Severinghaus, Ph.D., associate dean of Columbia University College of Physicians and Surgeons, New York, on "Reflections on Our Education."

FLORIDA

Professor of Pathology Appointed.—The University of Florida College of Medicine, Gainesville, announces the appointment of Dr. Joshua L. Edwards as professor and head of the department of pathology. Dr. Edwards has been assistant in the department of pathology and microbiology, Rockefeller Institute for Medical Research, since September, 1953.

Alcoholic Rehabilitation Program.—The Florida Alcoholic Rehabilitation Program offers 10 scholarships for the 1956 Yale Summer School of Alcohol Studies, conducted at Yale University, New Haven, Conn., during a four-week period. Scholarships will be open until Feb. 15. Inquiries should be addressed to the Florida Alcoholic Rehabilitation Program in Avon Park.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

First Unit of Medical School Dedicated.—The first building of the University of Miami School of Medicine, the outpatient clinic at Jackson Memorial Hospital, Miami, was dedicated July 17. Jay F. W. Pearson, Ph.D., president of the university, had as his topic, "Miami Comes of Age in Medicine." Dr. Pearson said in part: "I pay tribute here to those unsung heroes who accomplished legislation, fought endless legal battles, and had the vision and faith and courage to make dreams into reality. But my major tribute must be paid to those members of the medical profession, without whose devotion and selflessness you could not operate this hospital and clinic, and without whom the university could not operate a School of Medicine." He pointed out that professional treatment of the county's indigent patients would raise taxes several million dollars a year, without the volunteer service of local physicians rendering free service at the clinic and countless hours of free teaching service to students during their final two years of hospital and clinical education. Dr. Charles C. Hillman, executive director of Jackson Memorial Hospital since December, 1949, has been named associate dean of the school of medicine, and Dr. Kermit H. Gates, formerly deputy commander of Walter Reed Army Hospital at Washington, D. C., is the executive director. Dr. Hillman is a retired brigadier general whose last army post was as commanding general at Letterman General Hospital in San Francisco from 1944 to 1946.

GEORGIA

University News.—Dr. Benjamin R. Gendel, formerly chief of medicine at the Veterans Administration Hospital (Kennedy), Memphis, Tenn., has been appointed clinical professor of medicine at Emory University School of Medicine, Atlanta, and chief of medicine, Atlanta Veterans Administration Hospital.——Emory University announces the following faculty additions on a voluntary (part-time) basis in the medical school: Dr. John T. Godwin, Dr. Hugh V. Bell, Dr. Robert P. Coggins, Dr. A. Hamblin Letton, Dr. Lamar B. Peacock, Dr. Charles E. Todd; and in basic sciences in the health services, William B. Redmond, Ph.D.

ILLINOIS

Narcotic Violation.—Dr. Edward F. Cox, Neustadt Building, LaSalle, pleaded guilty in the U. S. District Court at Peoria, July 11, to a charge of violating the federal narcotic law. On Sept. 20 Dr. Cox received a suspended sentence and was placed on probation for two years. He was also fined $3,000.

Home Study Course.—Advanced training for laboratory workers is available through a correspondence course at the University of Chicago. "Principles of Pharmacology (Pharmacology 202)" is offered especially for laboratory workers who need a sound knowledge of pharmacology but have no formal training in the field; for research workers having bachelor's or advanced degrees in chemistry, biochemistry, biology, or allied fields; and for persons whose locations or work schedules prevent them from attending classes. The syllabus for the course was prepared by Valeska Evertsbusch, Ph.D., instructor for the course, in consultation with other departmental faculty members, under the supervision of Dr. Eugene M. K. Geiling, chairman of the department. "Principles of Pharmacology" covers (with exception of the laboratory work) essentially the same ground as does pharmacology in the medical curriculum of the university. As a correspondence course, it covers the field at a theoretical level. Registrations are accepted at any time. Tuition ($39) includes a 100 page syllabus and individual instructional service. Textbooks are extra. The course carries three and one-third semester hours of credit, on completion of the 30 lessons and final examination.

Chicago

Public Meeting on Diabetes.—The service unit of the Chicago Diabetes Association will conduct a free public meeting Nov. 18, 8 p. m., in the John B. Murphy Memorial Auditorium of the American College of Surgeons, 50 E. Erie St. Dr. Frederick W. Williams, New York, a vice-president, American Diabetes Association, will discuss "Living with Diabetes."

Dickinson Memorial Lecture.—At an open meeting the Chicago Academy of Sciences will present the fourth Albert Dickinson Memorial Lecture, "Some Nutritional Interrelationships of Potassium, Sodium and Nitrogen" by Dr. Paul R. Cannon, chairman, department of pathology, University of Chicago School of Medicine, at Albert Dickinson Hall (Lincoln Park—2001 N. Clark St.) Nov. 18, 8 p. m.

Fellowship in Pediatric Neurology.—A fellowship in pediatric neurology is available at the Children's Neurology Clinic of the Cook County Hospital in Chicago. It will provide clinical training in diagnosis and rehabilitation in children with neuromuscular handicaps. The trainee will be expected to participate also in a clinical laboratory problem. The annual stipend will vary from $3,000 to $5,000, depending on the qualifications of the applicant. For information write Dr. Meyer A. Perlstein, 4743 N. Drake Ave., Chicago 25.

Meeting of Cardiologists.—The Chicago Heart Association has scheduled an open meeting Nov. 15, 8 p. m., at the Drake Hotel. "Rehabilitation in Cardiovascular Disease" by Drs. Philip R. Lee and Howard A. Rusk, New York, will be presented by Dr. Lee and discussed by Dr. Ben L. Boynton. "Cerebral Atherosclerosis and the Concept of Cerebral Vasospasm" by Clark H. Millikan, Rochester, Minn., will be discussed by Dr. Geza de-Takats. All physicians are welcome. Incoming calls will be received at SUperior 7-2200.

The Jaffe Lecture.—Dr. Esmond R. Long, director of the Henry Phipps Institute of the University of Pennsylvania, Philadelphia, will give the Richard H. Jaffe Lecture of the Institute of Medicine of Chicago at a joint meeting of the Institute of Medicine, the Chicago Pathological Society, and the Society of Medical History of Chicago in the Drake Hotel Nov. 14, 8 p. m. The meeting, which will be devoted to a memorial to the late Dr. Ludwig Hektoen, will be preceded by a dinner. This will be an open meeting. All physicians are invited.

Diabetes Detection Drive.—The Chicago Diabetes Association, with cooperation from medical and civic groups, is sponsoring a Diabetes Detection Drive as part of the annual Diabetes Week observance, Nov. 13-19. Major hospitals in the area will establish free testing centers in support of the campaign. Dr. R. Lincoln Kesler, clinical assistant professor of medicine, University of Illinois College of Medicine, and Dr. Carl A. Hedberg, chief, department of medicine, Augustana Hospital, are co-chairmen of the committee on detection and education, which includes: Dr. Henry T. Ricketts, president, American Diabetes Association; Dr. Arthur R. Colwell, president, Chicago Society of Internal Medicine; and Dr. Ford K. Hick, professor of medicine, University of Illinois College of Medicine.

KENTUCKY

Narcotic Violation.—Dr. James H. Whitson, Slaughters, was convicted in the U. S. District Court, Owensboro, Sept. 12, for violation of the federal narcotic law. On Sept. 13, Dr. Whitson was sentenced to a term of two years and was fined $6,000. The sentence was suspended, and he was placed on probation for three years.

Law Science Foundation.—The Louisville Law Science Foundation, said to be the first of its kind in the nation, was recently established as a nonprofit research and educational organization. It includes members of the Jefferson County Medical Society, Bar Association, and the University of Louisville schools of law and medicine. The board of directors consists of six physicians, six attorneys, and the deans of the law school and the medical school. Dr. R. Arnold Griswold was elected chairman; Robert W. Sloss, attorney, vice-chairman; Dr. David M. Cox, treasurer; and Theodore Wurmser, attorney, executive secretary. All are from Louisville.

Personal.—Dr. Matthew W. Meadows, Fullerton, was honored by the residents of Greenup County with a parade, reception, and banquet on June 2 for 51 years of medical service. Dr. Meadows, aged 87, has been active in the community for this entire period.——Dr. Robert L. Collins, Hazard, was presented a community service plaque by the citizens of Perry County in appreciation of 38 years of service to the community and to the Frontier Nursing Service. Dr. Collins, who opened the first hospital in Hazard in association with the late Dr. A. M. Gross, has been active in the Perry County Health Department and in civic and community affairs.

MAINE

State Medical Association Moves.—The Maine Medical Association and its journal have moved from 142 High St., Portland 3, to the Dudley Coe Infirmary, Bowdoin College, Brunswick.

Postgraduate Course in Anesthesiology.—Members of the medical profession are welcome to attend the postgraduate educational program in anesthesiology being offered by the Maine General Hospital, Portland, in the house officers' quarters from 4 to 5 p. m. on the first and third Fridays of each month. On Nov. 18 the lecture will deal with intravenously given anesthesia.

MARYLAND

Society News.—The Radiological Section of the Baltimore City Medical Society will have as speaker Nov. 15, 5:30 p. m. at the Hopkins Club, Dr. H. S. N. Greene, Yale University School of Medicine, New Haven, Conn., who will discuss "Homologous and Heterologous Tumor Implants."

Dr. William Stone Named Dean.—Dr. William S. Stone, director of medical education and research at the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, has been named dean of the school to succeed Dr. H. Boyd Wylie who retired July 1. Dr. Stone's new office will include the responsibilities of the director of medical education and research as well as those of the dean.

Personal.—Dr. Robert O. Scow, an investigator in basic research at the National Institutes of Health, Bethesda, who was recently selected as the Schering Scholar of the Endocrine Society for 1955, has gone to Argentina, where he will spend a year at the institute of Prof. B. A. Houssay in Buenos Aires. He will study the effects of hormonal and nutritional factors on the production, prevention, and cure of experimental diabetes.——Dr. Perry Franklin Prather, Hagerstown, deputy director of health in the state of Maryland, was recently appointed director of health to succeed Dr. Robert H. Riley, Baltimore, who, on March 18, submitted his resignation, effective Jan. 1, 1956.

MASSACHUSETTS

Society News.—At the annual meeting of the New England Diabetes Association the following officers were elected: Dr. Harry Blotner, Boston, president; Dr. Samuel B. Beaser, Boston, vice-president; Dr. C. Gabell Bailey, Boston, secretary; and Dr. Robert J. MacMillan, Boston, treasurer.

Hospital Teaching Clinic for Diabetic Patients.—Plans for construction of the world's first hospital teaching clinic for diabetic patients were recently announced by Dr. Elliott P. Joslin, Boston. The two-story, million-dollar clinic building, to be constructed as part of the New England Deaconess Hospital, will occupy the corner of Joslin and Pilgrim roads, opposite Harris Hall and the Deaconess Building. The basement will contain records, bookkeeping files, secretarial forces, secretaries' and residents' rest rooms, laboratory, and sterilizing, x-ray, and supply rooms. A part of the basement and most of the first floor will be rented by the Joslin Clinic. The second floor, devoted entirely to patients, will have rooms containing one, two, and four beds. Diagnostic offices will be arranged on both sides of the two interior corridors.

MICHIGAN

Society News.—New officers of the Michigan Allergy Society include Dr. Sidney Friedlaender, Detroit, president; Dr. Kenneth P. Mathews, Ann Arbor, vice-president; and Dr. E. Oskar Schreiber, Flint, secretary-treasurer.

Seminar on Schizophrenia.—In its seminar series the Association for Clinical and Research Studies, Ypsilanti State Hospital, will present Dr. John N. Rosen, New York, who on Nov. 18 will speak on the direct analytic treatment of schizophrenia. The seminar will be highlighted by clinical demonstrations of Dr. Rosen's techniques. The morning session will include a presentation of theoretical formulations.

Course in Industrial Audiology.—This course for industrial nurses, technicians, safety directors, and physicians, which began Nov. 8, has been instituted by the newly formed department of industrial medicine and hygiene, Wayne University College of Medicine, Detroit. Dr. Heinrich F. G. Kobrak, professor of industrial otolaryngology, and his staff are instructing the six-week course, which is meeting on Tuesdays, 6:30-8:30 p. m. at the medical school's new building, 1401 Rivard.

Medical Aspects of Civil Defense.—A symposium on the medical aspects of civil defense will be presented at the Sheraton-Cadillac Hotel, Detroit, Nov. 16 under the cosponsorship of the Lederle Laboratories Division of the American Cyanamid Company and the Michigan Office of Civil Defense. The purpose is to assist in the training of auxiliary medical aid to staff improvised hospital units and casualty care stations during time of national disaster. Subjects scheduled for discussion are: "Nuclear Weapons and Radioactive Fall-Out Patterns," "Chemical Warfare," "Biological Warfare," "Evacuation Policy," "Psychological and Sociological Consequences of Disaster," and "United States Public Health Service Responsibilities in Civil Defense." The speakers include Dr. James S. Tyhurst, assistant professor of psychiatry, McGill University Faculty of Medicine, Montreal; Dr. Leroy E. Burney, assistant surgeon general, U. S. Public Health Service, Washington, D. C.; and Col. William S. Moore, Office of the Surgeon General, Washington, D. C.

MINNESOTA

Meeting on Diabetes.—The Twin Cities Diabetes Association, a newly organized affiliate of the American Diabetes Association, will have Dr. Henry T. Ricketts, professor of medicine, University of Chicago School of Medicine, Chicago, as guest speaker at 6:15 p. m., Nov. 16, in Coffman Memorial Union, University of Minnesota, Minneapolis. Dr. Ricketts, former president of the American Diabetes Association, will consider "The Problem of Vascular Disease in Diabetes." Physicians are welcome. Information can be obtained through Dr. Wyman E. Jacobson, WA 6-6581, Minneapolis, or Dr. Marguerite Schwyzer, MI 8-3893, St. Paul.

Personal.—Dr. Frank H. Krusen, Rochester, and Dr. Edgar J. Huenekens, Minneapolis, have been appointed to the Minnesota State Board of Health by Governor Orville Freeman.——Dr. Fletcher A. Miller, a research fellow at the University of Minnesota Medical School, Minneapolis, has been granted the second Charles O. Finley Research Scholarship ($20,000). Dr. Miller is particularly interested in research on problems of cardiac arrest.——Dr. Leo G. Rigler, chief, department of radiology, University of Minnesota Hospitals, Minneapolis, has been appointed to the National Advisory Cancer Council. Dr. Rigler is on a year's leave of absence from the university, during which he is undertaking the establishment of a postgraduate program at the City of Hope Medical Center, Duarte, Calif.——Dr. Gustaf Arvid Hedberg, medical director of Nopeming Sanatorium, Nopeming, has been awarded the 1955 Dearholt medal by the Mississippi Valley Conference on Tuberculosis. The medal, named for the late Dr. Hoyt E. Dearholt of Milwaukee, is presented for outstanding service in tuberculosis control in the Midwest. Dr. Hedberg, assistant professor of medicine, University of Minnesota Medical School, Minneapolis, is area consultant in tuberculosis for the Veterans Administration.

MISSISSIPPI

Professors Appointed.—The University of Mississippi Medical Center, Jackson, has appointed as professor of obstetrics and gynecology and chairman of the department Dr. Michael Newton, formerly of the University of Pennsylvania School of Medicine, Philadelphia, and as professor of neurosurgery Dr. Orlando J. Andy of Johns Hopkins University School of Medicine, Baltimore.

MONTANA

State Medical Election.—The Montana Medical Association recently named Dr. Edward S. Murphy, Missoula, president-elect; Dr. John A. Layne, Great Falls, vice-president; Dr. Theodore R. Vye, Billings, secretary-treasurer (reelected). Dr. George W. Setzer, Malta, was installed as president.

NEW JERSEY

Alumni Dinner.—The Alumni Association of the Jersey City Medical Center will observe its eighth anniversary Nov. 16 at dinner at the Hotel Plaza, Jersey City, at which the main speakers will be Dr. Charles L. Brown and Merritte M. Maxwell, D.D.S., deans respectively of the new medical and dental schools of Seton Hall University, Jersey City.

Cancer Seminar.—The third cancer seminar will be held at the Hotel President, Atlantic City, Nov. 19-20, under the auspices of the American Cancer Society, New Jersey division, and the special committee on cancer control to the Medical Society of New Jersey. The program will open Saturday at 12:30 p. m. with a luncheon address by Dr. Joseph I. Echikson, Newark, on "The Cancer Control Program in New Jersey." At 2:30 p. m. "Radio Therapy Treatment of Cancer of the Uterus" will be presented by Dr. Milford D. Schulz, Boston, and at 3 p. m. "Differential Diagnosis of Abnormal Uterine Bleeding" by Dr. John Y. Howson, Philadelphia. "An Evaluation of the Lung Cancer Problem" will then be made by Dr. John L. Pool, New York (Diagnosis and Treatment); Dr. Charles S. Cameron, New York (Directions in Lung Cancer Research); and Dr. Alfred A. Gellhorn, New York (Clinical Investigative Trends in the Control of Leukemia and Lymphomata). The following program has been scheduled for Sunday:

Surgery vs. Radiotherapy in Breast Cancer, Lauren V. Ackerman, St. Louis.
Hormone Control in Breast Cancer, Olof H. Pearson, New York.
Analysis of Testicular Tumors, Frank J. Dixon, Pittsburgh.
Cancer Detection in Rural Group Practice, Caldwell B. Esselstyn, Hudson, N. Y.
Cancer Originating in the Head and Neck, Donald P. Shedd, New Haven, Conn.
Luncheon meeting, Miss Ethel J. Alpenfels, New York.
Cancer Research Today, George E. Moore, Buffalo.
Radioisotopes in Cancer, Benedict J. Duffy, Washington, D. C.
Conservatism vs. Radicalism in Colon Cancer, Isidor S. Ravdin, Philadelphia.
Adjuncts to Surgery in the Treatment of Cancer, Henry T. Randall, New York.

NEW YORK

Society News.—At the meeting of the Medical Society of the County of New York Nov. 17, 8:30 p. m., "Uterine Causes of Abortion and Premature Labour" will be discussed by Prof. T. N. A. Jeffcoate, professor of obstetrics and gynecology, University of Liverpool, England.——Dr. Walter T. Murphy, director of therapeutic radiology, Roswell Park Memorial Institute, Buffalo, will discuss "Radiation Therapy of Breast Carcinoma" before the Binghamton Academy of Medicine Nov. 15.

Conference on Aging.—The Capital District Conference on Aging, sponsored by the Albany County Department of Public Welfare, will be held Nov. 17 at the Ann Lee Home, Albany, with Dr. John J. Phelan, medical director of the home, as general chairman. A panel on medical services for the aging will be presented at 2:15 p. m. by Dr. Raymond Harris, assistant medical director, Ann Lee Home; Dr. Robert P. Whalen, medical administrator, Albany County Department of Public Welfare, Albany; and Dr. John J. Bourke, executive director, New York State Joint Hospital Survey and Planning Commission, Albany. Dr. John G. McKeon, attending physician of the home, will serve as moderator for the general discussion 3-4 p. m.

Dr. Robert E. Plunkett Honored.—Dr. Robert E. Plunkett, assistant commissioner for tuberculosis control, state department of health, Albany, was honored recently by the capital district chapter, American Society for Public Administration, which presented him with the Charles Evans Hughes award for 1954. Dr. Plunkett was cited for his "unusual dedication, administrative skill and concern for human values." Dr. Plunkett has been a U. S. delegate to international tuberculosis conferences, has served as special consultant in many parts of the world, and was special medical examiner with the U. S. Army Medical Corps from 1917 to 1920.

New York City

Harvey Lecture.—Joseph S. Fruton, Ph.D., professor of biochemistry, Yale University School of Medicine, New Haven, Conn., will deliver the third Harvey Lecture of the 1955-1956 series at the New York Academy of Medicine Nov. 17 on "Enzymic Hydrolysis and Synthesis of Peptide Bonds."

Tumor Clinic Conference.—Dr. Charles B. Ripstein, chief, divisions of general and thoracic surgery, Bronx Municipal Hospital Center, will present "The Surgical Treatment of Carcinoma of the Pancreas" at the tumor clinic conference in the Women's Pavilion, Harlem Hospital, Nov. 16, 10:45 a. m.

Course on Office Proctology.—Dr. Robert Turell and staff will give a course on office proctology Nov. 14-15 at the Mount Sinai Hospital, in affiliation with Columbia University. The course, designed to acquaint the clinician with the important proctologic conditions that lend themselves to office diagnosis and treatment, will include demonstration of all diagnostic and various therapeutic procedures. For information, address the Registrar for Postgraduate Medical Instruction at the Mount Sinai Hospital, Fifth Avenue and 100th Street, New York 29. The course will be repeated Feb. 20-21, 1956. The fee is $50.

Appoint Dr. McDermott Director of Research.—Dr. Walsh McDermott of Cornell University Medical Center, editor of the *American Review of Tuberculosis and Pulmonary Diseases*, has been appointed to succeed Dr. Esmond R. Long, Philadelphia, who retired July 1, as director of medical research of the National Tuberculosis Association. Dr. Floyd M. Feldmann, formerly assistant to the managing director, has been named medical director of the National Tuberculosis Association and will be associated with Dr. McDermott in the research program. Dr. McDermott, who was recently appointed to the Livingston Farrand Chair of Public Health and Preventive Medicine of Cornell University Medical College, has been with the college since 1937.

NORTH CAROLINA

Course on Trauma.—The University of North Carolina School of Medicine, Durham, offers a course on trauma, including burns, for general surgeons Nov. 17-18. A visiting speaker will be Dr. David M. Bosworth, director of orthopaedic surgery, St. Luke's Hospital, New York City. The program will include lectures, panel discussions, case presentations, and ward rounds.

Fellowships in Medicine.—The departments of medicine and preventive medicine, University of North Carolina School of Medicine, Chapel Hill, offer two fellowships in medicine, supported by the Commonwealth Fund, for the academic year starting July 1, 1956. The fellowships are designed primarily to provide experience in ambulatory medicine with emphasis on prevention and early diagnosis of disease and on the treatment of minor emotional problems and psychosomatic disorders. The annual stipend for each of the two fellowships is $3,600, tax free, plus $350 allowance for a dependent spouse and each dependent child. Applications should be sent before Dec. 1 and should indicate the candidate's background, interests, and future plans and include a small recent photograph. Address inquiries to: Dr. William L. Fleming, Director, General Clinic, North Carolina Memorial Hospital, Chapel Hill.

OHIO

Personal.—The Frank E. Bunts Educational Institute, affiliated with the Cleveland Clinic Foundation, announces that Dr. Charles L. Leedham assumed duties as director of education Sept. 1.

Society News.—The Academy of Medicine of Cincinnati (152 E. Fourth St.) will present "Drug Treatment of Hypertension" by Dr. George A. Perera, associate professor of medicine, Columbia University College of Physicians and Surgeons, New York, Nov. 15.

Lectures on Neurology and Psychiatry.—The Cincinnati Society of Neurology and Psychiatry is presenting a series of evening lectures (8 p. m.) at the Cincinnati Sanitarium, 5642 Hamilton Ave., Cincinnati 24. The series opened Oct. 12 with "The Abortion Problem" by Dr. Harold Rosen, assistant professor of psychiatry, Johns Hopkins University School of Medicine, Baltimore. On Nov. 16 Dr. Henry A. Davidson, assistant superintendent, Essex County Overbrook Hospital, Cedar Grove, N. J., will discuss "Criminal Responsibility."

Fellowships in Industrial Medicine.—The Institute of Industrial Health, University of Cincinnati College of Medicine, is offering fellowships in industrial medicine to graduates of approved medical schools who have completed at least one year of internship. Two years are devoted to intensive academic and clinical study in industrial medicine, and the third year is spent in residency in an industrial medical department or in a comparable organization. Stipends for the first two years vary from $3,000 to $4,000, depending on marital status. In the final year a fellow is compensated by the organization in which he is completing his training. A one year certificate course, without stipend, is also offered to qualified applicants. Requests for information should be addressed to Secretary, Institute of Industrial Health, College of Medicine, Eden and Bethesda, Cincinnati 19.

PENNSYLVANIA

Course on Rehabilitation.—The University of Pennsylvania will offer a course, "Principles of Rehabilitation," at the Rehabilitation Center, University Hospital, on the following dates: Dec. 5-10, 1955; Feb. 6-11, 1956; April 2-7; and June 25-29. The course is open to physicians, registered nurses, occupational therapists, social workers, rehabilitation counselors, and others concerned with rehabilitation of the handicapped. Provision for granting a limited number of trainee stipends to eligible persons attending the course has been made by the U. S. Office of Vocational Rehabilitation. Applications for these stipends may be addressed to the Rehabilitation Center, Hospital of the University of Pennsylvania, Philadelphia 4.

Pittsburgh

Society News.—New officers of the Pittsburgh Pediatric Society include: Dr. William W. Briant, president; Dr. Robert R. Macdonald, vice-president; Dr. Bernard I. Michaels, secretary-treasurer.

Conferences on Industrial Medicine.—The 20th annual meeting of the Industrial Hygiene Foundation will be held at Mellon Institute, Pittsburgh, Nov. 16-17. On Wednesday at 9:30 a. m. the joint medical-chemical-toxicological conference will present a panel discussion, "Research Developments and Their Application in the Prevention of Occupational Disease." The afternoon session of the medical conference will open at 2 p. m. with "Mental Health as a Part of the Medical Program" by Dr. R. Christopher Leggo, Menlo Park, Calif., followed by a panel discussion, "Relationships Between the Medical Department and Management." For its afternoon session the joint engineering-legal conference will have a panel discussion, "Engineering and Legal Aspects of Management's Responsibility for Control of Industrial Hazards." On Thursday a general meeting will include presentation of "Graduate Education for Industry's Professional Personnel" by Dr. J. Roscoe Miller, president, Northwestern University, Evanston, Ill.

TEXAS

Personal.—Dr. Leigh J. Crozier, director of Hermann Hospital, Houston, was honored by the interns and residents of the hospital during the dinner meeting of the medical staff Sept. 23, when over 200 staff doctors were present. An engraved wrist watch was presented to him.

Society News.—Newly elected officers of the Lone Star State Medical Association include: Dr. Connie R. Yerwood, Austin, president; Dr. Joseph A. Chatman, Lubbock, president-elect; Dr. Peter G. Byrd, Beaumont, first vice-president; Dr. Wheatley C. Stewart, Odessa, second vice-president; Dr. Clarence C. B. Friday, Seguin, secretary; Dr. James M. Hilliard, Crockett, assistant secretary; and Dr. Henry D. Patton, Palestine, treasurer.

Health Unit Director Needed.—The Texas State Department of Health announces examinations for director, local health unit 1 A. The salary range is from $9,720 to $12,120; some large, metropolitan health departments may pay higher than this range from local sources. Currently these salaries are from $12,000 to $16,000 for entrance to the service. The minimum qualifications are (1) M.D. degree and one year's internship; (2) M.P.H. degree or certification by the American Board of Preventive Medicine; (3) two years of field experience after internship in general public health practice; (4) three years of additional experience in special training, teaching, or practice in preventive medicine and public health; and (5) licensure to practice medicine in Texas. For applications write: Merit System Council, 814 Littlefield Bldg., Austin, or Dr. Henry A. Holle, Commissioner of Health, Texas State Department of Health, 410 E. Fifth St., Austin.

VERMONT

Jobs for the Homebound.—A "pilot study" on methods of developing industrial employment for homebound handicapped persons is being conducted under the sponsorship of the Office of Vocational Rehabilitation in Washington, D. C., the American Foundation for the Blind, and National Industries for the Blind. Initial efforts will be concentrated on obtaining subcontract jobs from various industries. As the program develops, the possibility of producing items suitable for wholesale distribution and the manufacture of gift shop articles distinctive of Vermont will be explored. Headquarters of the industrial homework program have been established at 7 Langdon St. in Montpelier.

WISCONSIN

Grant for Cancer Research.—An institutional grant of $100,000 for cancer research was recently made by the American Cancer Society to the University of Wisconsin, Madison. Among projects to be supported are those concerned with the chemical composition of cells and cell particles, new methods of locating early cancers, trials of chemicals that might halt cancer, enzyme studies, studies of the origin of cancer in connection with protein and enzyme changes, chemicals that block cell growth, and analysis of nucleic acids that are cell constituents vital to cell growth.

State Medical Society Dedicates Offices.—The State Medical Society of Wisconsin dedicated its new offices at 330 E. Lakeside St., Madison, Oct. 15. Dr. William D. Stovall, Madison, past-president, presided. The remarks of the president were delivered by Dr. Ervin L. Bernhart, Milwaukee. Among those extending appreciatory remarks were Dr. Elmer Hess, Erie, Pa., President, American Medical Association; Dr. Gunnar Gundersen, La Crosse, Chairman, A. M. A. Board of Trustees; and Dr. George F. Lull, Chicago, A. M. A. Secretary and General Manager. Dr. Lowry H. McDaniel, Tyronza, Ark., Chairman, Section on General Practice, A. M. A., delivered the dinner address on "The Heart of Medicine."

HAWAII

Medical Association Plans for Centennial.—The Hawaii Medical Association invites members of the American Medical Association and their families to attend the centennial celebration in Honolulu April 22-29, 1956. The association, which secured its charter of incorporation from the Privy Council of King Kamehameha IV in 1856, plans to celebrate its centennial in Hawaiian style. In addition to scientific sessions with outstanding medical speakers from the United States, there will be a great pageant depicting the colorful history of medicine in the Islands, a luau (Hawaiian feast), and other events, with ample time for sight-seeing and relaxation. For information, write to the Hawaii Medical Association, 510 S. Beretania St., Honolulu 13, Hawaii.

GENERAL

Memorandums on Economic Poisons.—The National Agricultural Chemicals Association has prepared copies of the 1955 Revision of Clinical Memoranda on Economic Poisons, originally compiled by the U. S. Public Health Service Technical Development Laboratories. These memorandums, available without charge to physicians interested in the treatment of pesticide poisonings, may be obtained from the National Agricultural Chemicals Association, 1145 19th St., Washington, D. C.

Grants for Aeronautic Research.—At the annual meeting of the board of trustees and technical assistance board Dec. 16-17 in Washington, D. C., the Link Foundation will review requests for grants. Institutions and organizations interested in making application to the foundation should do so by Dec. 1. The primary purpose of the Link Foundation, whose office headquarters are at the Smithsonian Institution in Washington, D. C., is to make grants available to nonprofit institutions and associations for projects that advance education and training in aeronautics.

T. Duckett Jones Memorial Fund.—Friends of the late Dr. T. Duckett Jones have initiated the T. Duckett Jones Memorial Fund to advance his research objectives. The committee is presently of the opinion that research in rheumatic fever will be given priority by the fund's administrators. Depending on the amount received, a number of awards may be made to represent the philosophy and professional interests of Dr. Jones. Suggestions are welcomed by the committee. Contributions are tax exempt and should be sent to the T. Duckett Jones Memorial Fund, 525 E. 68th St., New York 21.

Association of Blood Banks.—The annual meeting of the American Association of Blood Banks will be held at the Palmer House, Chicago, Nov. 19-21. At the Saturday afternoon scientific session, Dr. R. R. A. Combs, department of pathology, University of Cambridge, England, will speak on the antiglobulin reaction and on Monday will open the afternoon session with "Detection of Platelet Antibodies by a New Method." Dr. Ruth Sanger, London, England, will present "Recent Blood Group Distinctions Between Certain Races" Sunday, 2 p. m. At the annual banquet Sunday, 7 p. m., Dr. Morris Fishbein, Chicago, will have as his subject "Blood—the Most Important Fluid." On Monday, luncheon discussion groups will consider: ACTH, cortisone, hydrocortone and meticortin and blood transfusion (tentative); red blood cell antigens and antibodies; blood storage; blood—patient insurance programs.

Meeting on School Health.—The 29th annual meeting of the American School Health Association will convene at the Hotel President and the Municipal Auditorium, Kansas City, Mo., Nov. 13-18. "The Association's Plan of Certification of Schools with Approved Programs for the Control of Tuberculosis" will be presented by Dr. Jay A. Myers, Minneapolis. Dr. Isaac P. Barrett, Fort Worth, Texas, president-elect, will preside at the second general session Thursday morning, when presentations will include "Advances in Communicable Disease Control" by Dr. Robert F. Korns, Albany, N. Y., and "Progress Against Chronic Disease in Children" by Dr. Thomas E. Shaffer, Columbus, Ohio. At the banquet Wednesday, 6:30 p. m., the William A. Howe award will be presented to Dr. Cyrus H. Maxwell, Assistant Director, Washington Office, American Medical Association.

Grants for Cancer Research.—The committee on growth of the National Academy-Research Council invites applications for grants for scholars in cancer research, offered by the American Cancer Society. These grants assist institutions in the support of young scientists during the critical early period of their careers as independent investigators. Grants are awarded for three years ($6,000 a year), with renewal for two additional years unless there are compelling reasons to the contrary. Applications should be submitted by institutions on behalf of candidates not later than Jan. 1. Application blanks may be obtained from the Executive Secretary, Committee on Growth, National Academy-Research Council, 2101 Constitution Ave., N. W., Washington 25, D. C.

Fellowship in Nutrition.—The National Vitamin Foundation invites persons with doctorate degrees in medicine or one of the biological sciences, interested in continuing training in nutrition, to become candidates for the second Russell M. Wilder Fellowship, which pays the recipient $4,500 the first year, $5,000 the second, and $5,500 the third year and is effective Jan. 1, 1956. Application forms are obtainable from the National Vitamin Foundation at 15 E. 58th St., New York 22. Applications must be accompanied by a letter from the executive officer of the institution where the work is to be done and by a letter from the head of the department under which the candidate is to work. The candidate must outline a program of investigation approved by his preceptor and give reasonable assurance that he will complete his fellowship and continue to work in the field of nutrition following the period covered by the fellowship. Applicants will be notified of action on or before Dec. 15.

Marriage-Career Views of Women Physicians.—The Barnard Alumnae Association of Barnard College, Columbia University, New York, recently sent a questionnaire regarding the feasibility of medical practice after marriage to 215 alumnae who are doctors and who took premedical courses at Barnard. Of the 124 alumnae who answered the questionnaire, 73% are combining their medical career with marriage and have an average of one and one-third children. Of the married doctors, 60% are putting into practice the theory that the marriage-career combination is more likely to succeed if the husband also is a doctor. One-fourth of the women replying specialize in pediatrics, one-eighth in internal medicine, another one-eighth in psychiatry, and the remaining half are general practitioners or are engaged in medical research, industrial medicine, school positions, and miscellaneous specializations. Asked whether their careers have been hampered because they are women, 91 replied "no," 22 "yes," and 8 "slightly." Only six answered "no" to the question, "If you had the choice to make over again, would you be a doctor?"

Cerebral Palsy Convention.—The United Celebral Palsy sixth annual convention is being held at the Hotel Statler, Boston, Nov. 11-13. The following Boston scientists will participate in the program:

Arthur M. Lassek, professor of anatomy, Boston University School of Medicine, Irreversibility of Motor Deficits Following Bilateral Cerebral Lesion.

Theodore H. Ingalls, associate professor of epidemiology, Harvard School of Public Health, Boston, Congenital Malformations in the Central Nervous System.

Paul I. Yakovlev, department of neurology, Harvard Medical School, Boston, Malformations of the End-Brain.

Bronson Crothers, professor of pediatrics, Harvard Medical School, Boston, Natural History of Cerebral Palsy and a special film project.

Betty Ben Geren, associate pathologist, Children's Cancer Research Foundation, Boston, Structure of the Neuron.

William T. Green, orthopaedic surgeon in chief, Children's Medical Center, Boston, Analysis of the Value of Surgical Procedures in the Treatment of Cerebral Palsy of the Spastic Type.

A symposium reassessing educational and clinical services for the cerebral palsied will be held Saturday afternoon with Dr. Arthur Miller, professor of education, Boston University, presiding.

Annual Meeting on Public Health.—The 83rd annual meeting of the American Public Health Association and 40 related organizations will convene in the Kansas City (Mo.) Municipal Auditorium Nov. 14-18. Dr. Herman E. Hilleboe, New York state commissioner of health, will deliver the presidential address Tuesday evening after the presentation of "Some Public Health Aspects of Medical Education" by Dr. Franklin D. Murphy, chancellor, University of Kansas, Kansas City. The general assembly will open at 10:30 a. m. Monday with a symposium on the theme of the entire meeting, "Where Are We Going in Public Health?" "Where Are We Going in World Health?" will be the topic for a symposium Wednesday evening. An address by Dr. Leonard A. Scheele, surgeon general, U. S. Public Health Service, "Mental Health—The New Frontier," is scheduled for Wednesday noon. On Thursday afternoon there will be a special session, "Practical Experience with Poliomyelitis Vaccine." Dr. Malcolm H. Merrill, Berkeley, Calif., will serve as moderator of the panel, with Drs. Robert D. Defries, Toronto, Canada, Thomas Francis Jr., Ann Arbor, Mich., Jonas E. Salk, Pittsburgh, Leonard H. Scheele, Washington, D. C., and Hart Van Riper, New York, as participants. Thursday at 8:30 p. m., an address by Harry S. Truman will precede the presentation of the Lasker awards. Friday afternoon Dr. Hugh R. Leavell, Boston, will moderate a summary symposium on public health specialists.

Meeting on Cancer Cytology.—The Southern Society of Cancer Cytology will hold its annual meeting at the Shamrock Hotel, Houston, Texas, Nov. 13, under the presidency of Dr. H. Hudnall Ware Jr., Richmond, Va. The following program will be presented:

Value of Cytology in Diagnosis of Lung Cancer, Dewitt C. Daughtry, Miami, Fla.
Experience with Routine Prostatic Cytology in a Cancer Clinic, Lois I. Platt, Washington, D. C.
The Liaison Between Basic and Clinical Cytology, Milan J. Kopac, Ph.D., New York.
New Device for Cell Collection from Cervix Uteri; and Presentation of a New Scanning and Research Microscope, H. E. Nieburgs, Brooklyn, N. Y.
Value of Cytologic Methods in the Accidents of Early Pregnancy, Wayne S. Rogers, Miami, Fla.
Role of Cytology in Gynecological Research, J. Ernest Ayre and Homer L. Pearson, Miami, Fla.
Primary Biopsy Versus Cytology in Diagnosis of Cancer in Situ (round table), Ralph Jack, Miami, Fla., Chairman.
Developments in Cytology Training (Report of Educational Advisory Committee of the Society), Homer L. Pearson, Miami, Fla., Chairman.

Dr. Carlos A. Lamar, Miami, Fla., will be guest of honor at the dinner meeting (dress optional), 7 p. m., to which ladies are invited. Dr. Edmund V. Cowdry, director, Wernse Cancer Research Institute, Washington University School of Medicine, St. Louis, guest speaker, will discuss "The So-Called Precancer Cells."

Meetings on Preventive Medicine.—The Association of Teachers of Preventive Medicine will hold its 12th annual meeting Nov. 13 at the Kansas University Medical Center, Kansas City, Kan. Addresses will be delivered by Dr. William P. Shepard, New York, Chairman, A. M. A. Council on Industrial Health (Medicine and Industry—Some Expectations of Each) and Dr. Rodney R. Beard, San Francisco (Occupational Hygiene—a Vehicle for Teaching Preventive Medicine). At the dinner session, 7 p. m., at the Hotel Muehlebach, Kansas City, Mo., "The Future of Preventive Medicine in America" will be considered by Dr. Wilson G. Smillie, professor emeritus of public health and preventive medicine, Cornell University Medical College, New York City.——The second annual meeting of the American College of Preventive Medicine will convene at the Muehlebach Hotel, Kansas City, Mo., Nov. 16-17. The sessions will open Wednesday, 8 p. m., with "Opportunities, Responsibilities and Dreams of the College—A Challenge," by Dr. George A. Dame, Jacksonville, Fla., past-president, Dr. John W. R. Norton, Raleigh, N. C., president, and Dr. Charles F. Sutton, Springfield, Ill., president-elect. This presentation will be followed by a panel discussion, "Relationships of College Individual-State-National; Related Groups," by Dr. Edward H. Leveroos, Director, Division of Hospitals and Graduate Education, American Medical Association, Chicago, Dr. Vivian A. Van Volkenburgh, Albany, N. Y., and Dr. Ernest L. Stebbins, Baltimore. Thursday morning will be devoted to a report on the Cornell Auto Crash Injury Study and Results.

Meeting of Southern Medical Association.—The annual meeting of the Southern Medical Association will be held at the Shamrock Hotel, Houston, Texas, Nov. 14-17. The presidential address, "Values in Medicine," by Dr. Robert L. Sanders, Memphis, Tenn., Monday morning, will precede an address, "The Range of Loyalty," by Francis P. Gaines, Ph.D., president, Washington and Lee University, Lexington, Va. At the dinner dance Wednesday evening, Dr. W. Raymond McKenzie, Baltimore, will be installed as president. The section on gastroenterology has scheduled a panel discussion, "Relationship of Life Stress to Gastrointestinal Symptoms and Disease" for Monday afternoon; a panel discussion, "Medical Versus Surgical Management of Certain Esophageal Diseases" for Tuesday afternoon; and for Wednesday morning, in joint session with the section on surgery, a panel discussion, "Medical Versus Surgical Treatment of Gastric Ulcer." The sections on medicine and on pathology will offer a symposium on thyroid, with the cosponsorship of the Southeastern and South Central regional committees of the College of American Pathologists. The section on physical medicine and rehabilitation will have a symposium Tuesday morning on the rehabilitative management of the severely disabled, chronically ill, and aging, and on Wednesday morning a panel presentation on the effective rehabilitation of the disabled for actual employment. A geriatrics symposium Thursday morning will be followed by a round-table panel session. The annual golf tournament is scheduled for Tuesday and Wednesday at the Lakeside Country Club (grounds fee, $3). A postconvention tour of Mexico will leave Houston on the afternoon of Nov. 17. After three days in Mexico City, the party will be driven in private cars to Taxco and then to Acapulco. The main party will spend 10 days in Mexico, but a week-long extension will be available for those wishing to visit the more rural points of interest.

FOREIGN

Awards for Amateur Medical Films.—The annual prize for Medico-Surgical Cinema (about $290) and various other awards will be given during the last session of the course of "Actualités medico-chirurgicales" at the Faculté de Médicine de Paris in March, 1956. The awards will be made for only 16 mm. amateur films unpublished, not subsidized, and not produced by any laboratory or firm. The jury will consider the didactic value of the film as well as its cinematographic quality. Entries may be sound or silent films, in color or black and white. Applications should be sent soon. Films must be received no later than Feb. 20, 1956. For information contact La Presse Médicale, 120 Blvd. Saint Germain, Paris VIe.

Birth Rates.—According to a study of international birth trends by the Metropolitan Life Insurance Company, birth rates in most of Western Europe are receding from the peaks reached during the early postwar years. Exceptions to the general trend in Western Europe were noted in France and Norway, where the birth rate in 1954 was still appreciably above that recorded just before World War II. In England and Wales the rate rose from 15.9 per 1,000 population in 1945 to 20.6 in 1947 but fell to 15.2 by 1954—not much above the 1935-1939 average of 14.9. Austria, Denmark, Scotland, and Sweden had similar trends. Rates in Germany, Greece, Italy, and Portugal are now well below their prewar levels. In Japan the rate in 1954 was about one-third less than in 1935-1939, and in the Philippines the decline has been even more pronounced. However, in the United States and other English-speaking countries outside Europe (Canada, Australia, and New Zealand), birth rates have remained one-third or more above their prewar levels. The rate in the United States during 1954 (25.3 per 1,000 of population) was higher than for any prewar year since the early 1920's.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.
1955 Clinical Meeting, Boston, Nov. 29-Dec. 2.
1956 Annual Meeting, Chicago, June 11-15.
1956 Clinical Meeting, Seattle, Nov. 27-30.
1957 Annual Meeting, New York, June 3-7.
1957 Clinical Meeting, Philadelphia, Dec. 3-6.

NATIONAL MEDICAL PUBLIC RELATIONS CONFERENCE, Hotel Statler, Boston, Nov. 28. Mr. Leo F. Brown, 535 N. Dearborn St., Chicago 10, Director.

AMERICAN ACADEMY OF DERMATOLOGY AND SYPHILOLOGY, Palmer House, Chicago, Dec. 3-8. Dr. James R. Webster, 55 East Washington St., Chicago 2, Secretary.

AMERICAN ACADEMY OF OBSTETRICS AND GYNECOLOGY, Conrad Hilton Hotel, Chicago, Dec. 13. Dr. C. Paul Hodgkinson, 116 South Michigan Blvd., Chicago, Secretary.

American Association of Blood Banks, Palmer House, Chicago, Nov. 19-21. Miss Marjorie Saunders, 3707 Gaston Ave., Dallas 10, Texas, Secretary.

American College of Preventive Medicine, Kansas City, Mo., Nov. 16-17. Dr. T. Paul Haney, 521 North Boulder St., Tulsa, Okla., Secretary.

American League Against Epilepsy, Roosevelt Hotel, New York, Dec. 8. Dr. Peter Kellaway, Baylor University College of Medicine, Houston 25, Tex., Secretary.

American Public Health Association, Muehlebach Hotel and Municipal Auditorium, Kansas City, Mo., Nov. 14-18. Dr. Reginald M. Atwater, 1790 Broadway, New York 19, Executive Secretary.

American Rheumatism Association, Interim Session, National Institutes of Health, Bethesda, Md., Dec. 9. Dr. Edward F. Hartung, 580 Park Ave., New York 21, Secretary.

American School Health Association, Hotel President, Kansas City, Mo., Nov. 14-18. Dr. A. O. DeWeese, 515 East Main St., Kent, Ohio, Secretary.

Association for Research in Nervous and Mental Diseases, Hotel Roosevelt, New York, Dec. 9-10. Dr. Clarence C. Hare, 710 West 168th St., New York 32, Secretary.

Eastern Section, American Federation for Clinical Research, Hotel Warwick and College of Physician's Building, Philadelphia, Dec. 2-3. Dr. Charles R. Shuman, Temple Univ. Hospital, Broad and Ontario Sts., Philadelphia 40, Chairman.

Industrial Hygiene Foundation of America, Mellon Institute, Pittsburgh, Nov. 16-17. Dr. C. Richard Walmer, Mellon Institute, Pittsburgh 13, Managing Director.

Interstate Post Graduate Medical Association of North America, Municipal Auditorium, Milwaukee, Nov. 14-17. Mr. Roy T. Ragatz, 207 Gay Bldg., Madison 3, Wis., Executive Director.

Los Angeles Midwinter Medical Convention, Biltmore Hotel, Los Angeles, Jan. 3-5. Dr. Paul D. Foster, 1925 Wilshire Blvd., Los Angeles 58, General Chairman.

Medical Society Executives Conference, Parker House, Boston, Nov. 27. Mr. H. Martin Baker, 1102 South Hillside, Witchita 17, Kansas, Secretary.

New England Health Education Association, Boston, Dec. 2. Miss Wyntha Tompkins, Middlesex Health Association, Essex, Mass., Secretary.

Puerto Rico Medical Association, Santurce, Dec. 7-11. Dr. Luis R. Guzman-Lopez, Box 9111, Santurce, Secretary.

Radiological Society of North America, Palmer House, Chicago, Dec. 11-16. Dr. Donald S. Childs, 713 E. Genesee St., Syracuse 2, N. Y., Secretary.

Regional Meetings, American College of Physicians:

Cincinnati, Nov. 17. Dr. Charles A. Doan, Ohio State University College of Medicine, Columbus 10, Ohio, Governor.

Baltimore, Nov. 19. Dr. R. Carmichael Tilghman, 6 East Eager St., Baltimore 2, Governor.

Vancouver, B. C., Nov. 19. Dr. H. A. DesBrisay, 925 West Georgia St., Vancouver, B. C., Governor.

Detroit, Dec. 3. Dr. H. Marvin Pollard, 1313 East Ann St., Ann Arbor, Mich., Governor.

Hot Springs, Ark., Dec. 3. Dr. A. A. Blair, 100 S. 14th St., Ft. Smith, Ark., Governor.

Winston-Salem, N. C., Dec. 8. Dr. Elbert Persons, Duke Hospital, Durham, N. C., Governor.

Southern Medical Association, Shamrock Hotel, Houston, Texas, Nov. 14-17. Mr. V. O. Foster, 1020 Empire Bldg., Birmingham 3, Ala., Secretary-Manager.

Southern Society of Cancer Cytology, Houston, Texas, Nov. 14-17. Dr. J. Ernest Ayre, 1155 N.W. 14th St., Miami, Fla., Secretary.

Southern Surgical Association, The Homestead, Hot Springs, Va., Dec. 6-8. Dr. George G. Finney, 2947 St. Paul St., Baltimore 18, Secretary.

Southern Thoracic Surgical Association, The Greenbrier, White Sulphur Springs, W. Va., Dec. 2-5. Dr. Hawley H. Seiler, 442 West Lafayette St., Tampa 6, Fla.

Southwestern Medical Association, Westward Ho Hotel, Phoenix, Ariz., Nov. 16-18. Dr. Celso C. Stapp, 800 Montana St., El Paso, Texas, Secretary.

Western Surgical Association, Olympic Hotel, Seattle, Dec. 1-3. Dr. John T. Reynolds, 612 N. Michigan Blvd., Chicago 11, Secretary.

FOREIGN AND INTERNATIONAL

All India Medical Conference, Jaipur, India, Dec. 26-28. Dr. B. N. Consul, Association Bldg., S.M.S. Hospital Premises, Jaipur, India, Organizing Secretary.

Conference of International Union for Health Education of the Public, Rome, Italy, Apr. 27-May 5, 1956. Mr. Lucien Viborel, 92 rue St. Denis, Paris 1er, France, Secretary-General.

Congress of International Association of Limnology, Helsinki, Finland, July 26-Aug. 7, 1956. For information address: Dr. H. Luther, Snellmansgatan 16 C 36, Helsinki, Finland.

Congress of International Association of Logopedics and Phoniatrics, Barcelona, Spain, Sept. 3-7, 1956. Dr. J. Perello, Provenza 319, Barcelona 9, Spain, Secretary-General.

Congress of International Society of Hematology, Hotel Statler, Boston, Mass., U.S.A., Sept. 3-8, 1956. Dr. W. C. Moloney, 39 Bay State Road, Boston, Mass., U.S.A., Secretary.

Congress of International Society for Research on Anesthesia, Miami Beach, Fla., U.S.A., Mar. 12-15, 1956. For information write: Dr. R. J. Whitacre, 13951 Terrace Road, Cleveland 12, Ohio, U. S. A.

Congress of Latin Society of Ophthalmology, Madrid, Spain, April 24-28, 1956. For information address: Dr. Costi, Montalban 3, *Madrid, Spain.*

European Congress of Allergology, Florence, Italy, Sept. 12-15, 1956. Prof. Umberto Serafini, Instituto de Patologia Medica, Viale Morgagni, Florence, Italy, Secretary-General.

European Congress of Cardiology, Stockholm, Sweden, Sept. 10-14, 1956. Dr. Karl Erik Grewin, Sodersjukhuset, Stockholm, Sweden, General Secretary.

European Symposium on Vitamin B_{12}, Hamburg, Germany, May 1956. For information write: Doz. Dr. H. Bauer, Nervenklinik, Hamburg-Eppendorf, Germany.

Inter-American Congress of Cardiology, Havana, Cuba, Nov. 4-10, 1956. *For information address: Dr. Ramon Aixala, Apartado 2108,* Havana, Cuba.

International Academy of Pathology, Cincinnati, Ohio, U. S. A., April 24-25, 1956. Dr. F. K. Mostofi, Armed Forces Institute of Pathology, Washington 25, D. C., U. S. A., Secretary.

International Congress Against Alcoholism, Istanbul, Turkey, Sept. 10-15, 1956. For information address: International contre l'Alcoolisme, Case Gare 49, Lausanne, Switzerland.

International Congress of Anthropological and Ethnological Sciences, Philadelphia, Pa., U. S. A., Sept. 2-9, 1956. Dr. William N. Fenton, National Research Council, Division of Anthropology and Psychology, 2101 Constitution Avenue, Washington 25, D. C., U. S. A., Secretary-General.

International Congress on Diseases of the Chest, Cologne, Germany, Aug. 19-23, 1956. Mr. Murray Kornfeld, 112 East Chestnut St., Chicago 11, Illinois, U. S. A., Executive Director.

International Congress of Entomology, Montreal, Canada, Aug. 17-25, 1956. Mr. J. A. Downes, Science Service Bldg., Carling Ave., Ottawa, Ont., Canada, Secretary.

International Congress of Gastroenterology, London, England, July 18-21, 1956. Mr. Hermon Taylor, London Hospital, White Chapel, London E.1, England, Honorable Secretary.

International Congress for the History of Science, Florence and Milan, Italy, Sept. 3-10, 1956. Dr. M. L. Bonelli, Instituto di Ottica, Arcetri, Florence, Italy, Secretary-General.

International Congress of Hydatid Disease, Athens, Greece, Sept. 14-18, 1956. Prof. B. Kourias, Croix-Rouge Hellenique, 1 rue Mackenzie King, Athens, Greece, Secretary-General.

International Congress of Internal Medicine, Madrid, Spain, Sept. 19-23, 1956. Dr. J. C. De Oya and Dr. J. Gimena, Hostaleza No. 90, Madrid, Spain, Secretaries.

International Congress of International College of Surgeons, Palmer House, Chicago, Illinois, U. S. A., Sept. 9-13, 1956. Dr Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U. S. A., Secretary-General.

International Congress of Neo-Hippocratic Medicine, Montecatini, Terme, Italy, May 20-22, 1956. Dr. Valente, 41 Avenue Verdi, Montecatini Terme, Italy, Secretary-General.

International Congress of Paediatrics, Copenhagen, Denmark, July 22-27, 1956. Professor P. Plum, Rigshospitalet, Copenhagen, Denmark, President.

International Congress of Physical Medicine, Copenhagen, Denmark, August 20-24, 1956. Dr. B. Strandberg, Kobenhavns amts sygehus i Gentofte, Dept. of Rheumatology and Physical Medicine, Hellerup, Denmark, Honorable Secretary.

International Congress of Physiopathology of Animal Reproduction and Artificial Insemination, Cambridge, England, June 25-29, 1956. For information address: Dr. Joseph Edwards, Production Division, Milk Marketing Board, Thames Ditton, Surrey, England.

International Congress of Radiology, Mexico, D. F., Mexico, July 22-28, 1956. Dr. Jose Noriega, Tepic 126 (2e piso), Mexico, D. F. 7, *Mexico, Secretary General.*

International Congress of World Confederation for Physical Therapy, Hotel Statler, New York, New York, U. S. A., June 17-23, 1956. For information address: Miss Mildred Elson, American Physical Therapy Association, 1790 Broadway, New York 19, New York, U. S. A.

International Genetics Symposium, Tokyo and Kyoto, Japan, Sept 6-12, 1956. For information address: Secretary, International Genetics Symposium, Science Council of Japan, Ueno Park, Tokyo, Japan.

International Physiological Congress, Brussels, Belgium, July 29-Aug. 5, 1956. For information address: Prof. J. Reuse, Faculte de Medicine et de Pharmacie, 115 Boulevard de Waterloo, Brussels, Belgium.

International Professional Union of Gynecologists and Obstetricians, Madrid, Spain, Sept. 28-29, 1956. Dr. Jacques Courtois, 1 rue Racine, St-Germain-en-Laye (S and O), France, Permanent *International* Secretary-General.

Latin American Congress of Pathology, Mexico, D. F., Mexico, Dec. 11-17. For information address: Laboratorio de Anatomia Patologica, Instituto N. de Cardiologia, Avenida.Cuauhtemoc 300, Mexico 7, D. F., Mexico.

Latin American Congress of Physical Medicine, San Juan, Puerto Rico and Curacao, N.W.1., Jan. 29-Feb. 8, 1956. Dr. Cassius Lopez de Victoria, 176 East 71st St., New York 21, New York, U. S. A., Executive Director.

North Queensland Medical Conference, Cairns, North Queensland, Australia, June 25-30, 1956. Dr. W. R. Horsfall, P. O Box 672, Cairns, N.Q., Australia, Secretary.

Pan-American Academy of General Practice, San Juan, Puerto Rico and Curacao, N.W.1., Jan. 29-Feb. 8, 1956. Dr. Arturo Martinez, 54 East 72d St., New York 21, New York, U. S. A., Secretary.

Pan American Congress of Gastroenterology, Havana, Cuba, Jan. 20-27, 1956. For information address: Dr. Norberto M. Stapler, 1267 J. E. Uriburu, Buenos Aires, Argentine, S. A.

Pan American Congress of Ophthalmology, Santiago, Chile, S. A., Jan. 9-14, 1956. Dr. Rene Contardo, Huerfanos 930, Of. 74, Santiago, Chile, Secretary General.

Pan American Congress of Otorhinolaryngology and Bronchoesophagology, San Juan, Puerto Rico, March 8-12, 1956. Dr. C. E. Munoz MacCormick, Apartado 9111, Santurce, Puerto Rico, Secretary General.

Pan American Medical Women's Alliance, Santiago, Chile, March 6-13, 1956. For information address: Dr. Eva Cutright, 458 Beall Ave., Wooster, Ohio, U. S. A.

Venezuelan Congress of Medical Sciences, Caracas, Venezuela, S. A., Nov. 18-26. Dr. A. L. Briceno Rossi, Apartado 4412, Ofic. del Este, Caracas, Venezuela, S. A., Secretary General.

World Congress on Fertility and Sterility, Naples, Italy, May 18-26, 1956. For information address: Prof. G. Tesauro, S. Andrea della Dame, 19, Naples, Italy.

World Medical Association, Havana, Cuba, Oct. 9-15, 1956. Dr. Louis H. Bauer, 345 East 46th St., New York 17, New York, U. S. A., Secretary-General.

EXAMINATIONS AND LICENSURE

EXAMINING BOARDS IN SPECIALTIES

American Board of Dermatology and Syphilology. *Written.* Various centers, July 26. *Oral.* St. Louis, Oct. 12-15. Sec., Dr. B. M. Kesten, One Haven Ave, New York 32.

American Board of Internal Medicine: *Oral.* Chicago, Nov. 30-Dec. 1. *Subspecialties. Cardiovascular Disease.* Chicago, Nov. 30. The closing date for acceptance of application for gastroenterology was Feb. 1, and for cardiovascular disease the closing date was June 1. *Written.* Oct. 15, 1956. Final date for filing application is May 1. *Oral Examinations in 1956.* New Orleans, Feb. 7-10; Los Angeles, April 12-14; Chicago, June 7-9. Final date for filing application for these three oral examinations is Jan. 3. New York City, Sept. 21-25. Final date for filing application is April 1. Exec. Sec., Dr. William A. Werrell, 1 West Main St., Madison 3, Wis.

American Board of Neurological Surgery: *Oral.* New Haven, November. Oral examinations given in Spring and Fall. Final date for filing application for the Spring examination was October 1; for the Fall examination April 1. Sec., Dr. Leonard T. Furlow, Washington University School of Medicine, St. Louis 10.

American Board of Obstetrics and Gynecology: *Written Examination and submission of Case Reports. Part I.* Various locations in United States and Canada, and military centers outside of the Continental United States, Feb. 3, 1956. Final date for filing application was Oct. 1. *Oral and Pathological Examinations. Part II.* Chicago, May 11-20, 1956. Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

American Board of Ophthalmology: *Written.* January 24-26, 1956. *Practical Examination.* San Francisco, June 18-21, St. Louis, Oct. 20-25. Applications for 1957 written examination must be filed before July 1, 1956. Sec., Dr. Merrill J. King, Box 236, Cape Cottage Branch, Portland 9, Maine.

American Board of Orthopaedic Surgery: *Oral.* Jan. 26-27. Final date for filing application was Aug. 15. *Part I. Oral and written.* Various centers, April 1956. Final date for filing application is Nov. 30. Sec., Dr. Harold A. Sofield, 116 South Michigan Ave., Chicago 3.

American Board of Otolaryngology. *Oral.* Montreal, Canada, May 6-10. Sec., Dr. Dean M. Lierle, University Hospitals, Iowa City.

American Board of Pediatrics: *Oral.* Washington, D. C., Dec. 2-4. Admin. Sec., Mrs. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

American Board of Physical Medicine and Rehabilitation. *Parts I and II.* Chicago, June 16-17. Sec., Dr. Earl C. Elkins, 200 First St., S. W., Rochester, Minn.

American Board of Plastic Surgery. *Entire Examination.* Buffalo, May 13-15. Final date for filing case reports is Jan. 1. Corres. Sec., Mrs. Estelle E. Hillerich, 4647 Pershing Ave., St. Louis 8.

American Board of Preventive Medicine: *Certification in Public Health.* Kansas City, Mo., Nov. 10-12. Sec.-Treas., Dr. Ernest L. Stebbins, 615 N. Wolfe St., Baltimore 5.

American Board of Psychiatry and Neurology: New York City, December, Philadelphia, April 16-18, 1956. Sec., Dr. David A. Boyd, 102-110 Second Ave. S.W., Rochester, Minn.

American Board of Radiology: Chicago, Dec. 4. Final date for filing applications for the fall examination was July 1. Candidates who will complete their training by Dec. 31 will be eligible to appear for this examination. Deadline for filing applications for the Spring 1956 examination is Jan. 1. Those candidates who will complete their training by June 30, will be eligible to appear at this examination. Sec., Dr. B. R. Kirklin, Kahler Hotel Bldg., Rochester, Minn.

American Board of Surgery: *Part I.* Centers throughout the United States, in Europe and in the Far East, March 28. Closing date for the March examination is December 1. *Part II.* New York City, Nov. 14-15; St. Louis, Dec. 12-13; New Orleans, Jan. 16-17; Los Angeles, Feb. 13-14; San Francisco, Feb. 16-17; Durham, March 12-13; Boston, May 14-15 and Philadelphia, June 4-5. Sec., Dr. John B. Flick, 255 S. Fifteenth St., Philadelphia 2.

Board of Thoracic Surgery. *Written.* February 1956. Closing date for filing application is Dec. 1. Sec., Dr. William M. Tuttle, 1151 Taylor Ave., Detroit 2, Mich.

MAGAZINE–TELEVISION REPORT

The following list of current medical articles in mass-circulation magazines and forthcoming network television programs on medical subjects is published each week only for the information of readers of The Journal. *Unless specifically stated, the American Medical Association neither approves nor disapproves of the articles and programs reported.*

TELEVISION

Saturday, Nov. 12

ABC-TV, 9 p. m. EST. "Tomorrow's Careers" will discuss the work of the dermatologist.

Monday, Nov. 21

NBC-TV, 11 a. m. to 12 noon EST. "Medical and Health News with Howard Whitman," a segment of the "Home" program.

NBC-TV, 9 p. m. EST. "Medic" presents "Candle of Hope," a dramatization of medicine's latest findings in the field of fertility.

ABC-TV, 9:30 p. m. EST. "Medical Horizons" takes its cameras to the Children's Hospital, University of Pittsburgh Health Center, to see how diabetic children are taught to live normal lives despite their affliction.

MAGAZINES

Cosmopolitan, November, 1955

"How Emotions Cause Unnecessary Surgery," by Alice Mulcahey

"Medical reports reveal that a shocking number of needless operations are performed each year because inner turmoil can produce bodily pain real and acute enough to fool you and your doctor." The author says that "too many surgeons are simply unaware that physical symptoms—and even laboratory readings which seem to demand an operation—can be produced by emotional problems."

Town Journal, November, 1955

"What to Do in Case of a Sudden Heart Attack," by John E. Eichenlaub, M.D.

The author tells about the two main types of heart attack—congestive failure and coronary attack—and describes the treatment used for each. An accompanying chart shows what to do if a heart attack hits suddenly.

Nowicki, Joseph Aloisius ⊕ Detroit; University of Buffalo School of Medicine, 1912; served during World War I; on the staff of the Grace Hospital; died in the Redford Branch of the Receiving Hospital Aug. 24, aged 66, of fracture of the skull when his automobile was struck by a train.

Nunnally, William Ord ⊕ Fairmont, W. Va.; Temple University School of Medicine, Philadelphia, 1942; interned at Methodist Hospital in Philadelphia; killed in an airplane accident Sept. 4, aged 37.

Oliver, Hudson Jones Jr., New York City; Howard University College of Medicine, Washington, D. C., 1913; member of the Medical Society of the State of New York; served during World War I; at one time associated with the Harlem Hospital; died in the Veterans Administration Hospital Sept. 20, aged 66, of cancer.

Onstine, Warner Abram ⊕ Taos, N. Mex.; Ohio Medical University, Columbus, 1896; on the staff of the Holy Cross Hospital; died Sept. 7, aged 83, of coronary thrombosis.

Overton, Marvin Cartmell Sr. ⊕ Lubbock, Texas; University of Louisville (Ky.) Medical Department, 1902; specialist certified by the American Board of Pediatrics; member of the American Academy of Pediatrics; past-president of the Lubbock-Crosby Counties Medical Society; on the staff of the Methodist Hospital; author of "Your Baby and Child"; died Sept. 1, aged 77, of myeloid metaplasia.

Page, Claude Weston ⊕ McKees Rocks, Pa.; Jefferson Medical College of Philadelphia, 1907; on the staffs of the Ohio Valley and St. John's hospitals; died Aug. 20, aged 72, of arteriosclerotic heart disease and coronary thrombosis.

Peck, Robert Ellsworth ⊕ Dunbarton, N. H.; Yale University School of Medicine, New Haven, Conn., 1893; for many years practiced in New Haven, Conn., where he was on the staff of the Grace-New Haven Community Hospital; died in the Moore General Hospital, Goffstown, N. H., July 6, aged 88, of carcinoma.

Phelan, Emma ⊕ Imperial, Mo.; St. Louis College of Physicians and Surgeons, 1909; at one time vice-president of St. Louis Medical Society; served on the staffs of the St. Louis County Hospital in Clayton and the Deaconess Hospital and St. John's Hospital in St. Louis, where she died Aug. 21, aged 79, of myocardial decompensation.

Pierce, Franklin Duane, Buffalo; Syracuse University College of Medicine, 1904; died Sept. 16, aged 78, of arteriosclerotic heart disease.

Reckefus, Charles Halwadt Jr. ⊕ Philadelphia; Jefferson Medical College of Philadelphia, 1893; member of the honorary staff at Lankenau Hospital, where he died Sept. 12, aged 84, of carcinoma of the pancreas.

Richards, Joseph Francis, Bellevue, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1917; died June 5, aged 61, of heart disease.

Roberts, William Humes ⊕ La Jolla, Calif.; Cooper Medical College, San Francisco, 1894; specialist certified by the American Board of Ophthalmology and the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology and the American Laryngological, Rhinological and Otological Society; fellow of the American College of Surgeons; an associate member of the American Medical Association; died Sept. 18, aged 83.

inson, James Lee ⊕ Lieutenant colonel, U. S. Army, retired,
Hopkins University School of Medicine,
Army in 1911; retired
30; served

Segal, Myer, Camden, N. J.; Medico-Chirurgical College of Philadelphia, 1912; died in the University Hospital, Philadelphia, Sept. 8, aged 65.

Senor, Samuel David ⊕ St. Joseph, Mo.; Northwestern Medical College, St. Joseph, 1889; from 1889 to 1906 taught general anatomy, anatomy of the central nervous system, and histology at Central, Northwestern, and Ensworth medical schools; died Sept. 21, aged 88, of cerebral hemorrhage.

Shannon, James Herbert, Washington, Pa.; Harvard Medical School, Boston, 1901; died in the Mercy Hospital, Pittsburgh, Aug. 5, aged 79, of bronchopneumonia and arteriosclerotic heart disease.

Snearly, George Earl, Houston, Texas; Chicago College of Medicine and Surgery, 1906; served during World War I; died in the Heights Hospital Sept. 14, aged 74, of coronary thrombosis with infarction.

Souders, John Cloyd ⊕ Rock Island, Ill.; State University of Iowa College of Medicine, Iowa City, 1904; past-president of the Rock Island County Medical Society; on the staff of St. Anthony's Hospital in Rock Island and the Lutheran Hospital in Moline; died Aug. 23, aged 82, of cancer.

Sprinkle, Davis Lee ⊕ Dallas, Texas; Baylor University College of Medicine, Dallas, 1930; member of the Radiological Society of North America; died in the Baylor University Hospital Aug. 27, aged 65, of a heart attack.

Stanley, Francis Guy ⊕ Beverly, Mass.; Harvard Medical School, Boston, 1909; served as chief surgeon at the Lynn and Union hospitals in Lynn; formerly city physician and school committeeman; died Aug. 24, aged 80, of coronary arteriosclerosis.

Supple, William Raymond ⊕ Cambridge, Mass.; Harvard Medical School, Boston, 1919; veteran of World War I; on the staff of the Charles Choate Memorial Hospital in Woburn, and Chester, Mount Auburn, and Sancta Maria hospitals; died Aug. 24, aged 62, of coronary disease.

Vaughan, James Maurice, Camden, N. J.; Howard University College of Medicine, Washington, D. C., 1914; member of the Medical Society of New Jersey; died June 17, aged 65, of a heart attack.

Wallin, Mathilda K. ⊕ Elmsford, N. Y.; Woman's Medical College of the New York Infirmary for Women and Children, New York City, 1893; an associate member of the American Medical Association; died in Dobbs Ferry (N. Y.) Hospital Sept. 19, aged 97, of arteriosclerotic heart disease, pneumonia, and hypertension.

Weidlein, Floyd Henry, Palisade, Colo. (licensed in Colorado in 1916); died in Grand Junction Aug. 12, aged 67, of cerebrovascular arteriosclerosis.

Wilcox, Clarence Robert ⊕ Jacksonville, Fla.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1904; on the staffs of the Duval Medical Center, St. Vincent's, and St. Luke's hospitals; died Aug. 2, aged 76.

Wood, William Patton ⊕ Strawberry Plains, Tenn.; University of Tennessee Medical Department, Nashville, 1894; past-president of the Knox County Medical Society and the Tennessee State Medical Association; a founder of the Fort Sanders Hospital, where he was on the staff for many years; died Sept. 3, aged 86, of arteriosclerotic heart disease.

Woodall, John Burleson, Port Arthur, Texas; Baylor University College of Medicine, Dallas, 1936; died in an automobile accident Aug. 30, aged 49.

Wright, John Alexander, Doswell, Va.; University College of Medicine, Richmond, 1898; surgeon for the Chesapeake and Ohio Railroad; died Sept. 2, aged 79, of cerebral thrombosis.

⊕ Bakersfield, Calif.; University of Michigan
Ann Arbor, 1920; member of the American
al Practice; past-president of the Ottawa
y, served during World War I; formerly
Ohio, where he was associated with
Hospital; died Aug. 3, aged 61.

DEATHS

Levinson, Abraham ⊕ Chicago; born in Linkovo, Russia, Aug. 25, 1888; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1911; received his bachelor of science degree from the University of Chicago in 1917; did postgraduate work at the University of Vienna in 1914, 1915, 1923, 1928, and 1930; professor of pediatrics, emeritus, at Northwestern University Medical School; professor of pediatrics at Cook County Graduate School of Medicine; specialist certified by the American Board of Pediatrics; vice-president of the Chicago Pediatric Society in 1935 and president in 1936; member of the American Academy of Pediatrics, Institute of Medicine of Chicago, American Association of the History of Medicine, Sigma Xi, and Phi Delta Epsilon; chairman of the committee on mental hygiene of the Illinois State Medical Society for many years; awarded a certificate of merit by the American Medical Association in 1932 for his scientific exhibit on cerebrospinal fluid in health and disease, and by the Illinois State Medical Society in 1936 for exhibit on experimental studies in cerebrospinal fluid and in 1940 for his exhibit on cerebral manifestations of the newborn; was given the Phi Lambda Kappa gold medal award for achievements in medical science in 1940 and the orator key of the History of Medicine Society of Tulane University School of Medicine in 1942; attending pediatrician at the Sarah Morris Hospital for Children, a unit of Michael Reese Hospital, where he was vice-president from 1933 to 1935, and chief of the pediatric department at the Mount Sinai Hospital, where he was vice-president from 1934 to 1936; attending pediatrician and chief of staff of the children's division of the Cook County Hospital; director of the Dr. Julian Levinson Research Foundation; his most notable achievements were in the field of pediatric neurology; described the Levinson phenomenon for the differential diagnosis between laryngeal diphtheria and laryngitis (1915); author of "Pediatric Nursing," translated into Hebrew in 1933, "Cerebrospinal Fluid in Health and Disease," and "The Mentally Retarded Child"; contributed chapters to systems of pediatrics; joint editor with Dr. I. A. Abt of "Pediatric Year Book" (1916-1920); died Sept. 17, aged 67, of acute myocardial infarction.

Gray, Howard Kramer ⊕ Rochester, Minn.; born in St. Louis Aug. 28, 1901; Harvard Medical School, Boston, 1927; interned at the Robert Packer Hospital in Sayre, Pa.; professor of surgery at University of Minnesota Graduate School; since 1948 member of the board of governors of the Mayo Clinic; certified by the National Board of Medical Examiners; specialist certified by the American Board of Surgery; member of the American Surgical Association, Southern Surgical Association, Western Surgical Association, Society of Clinical Surgery, and the American Association of Thoracic Surgery; fellow of the American College of Surgeons; awarded the Navy Commendation ribbon for devotion to duty and Legion of Merit for exceptionally meritorious conduct during World War II; consultant at the Colonial and St. Mary's hospitals; awarded the honorary degree of doctor of science in 1949 from Lafayette College, Easton, Pa., and the same degree in 1954 by the University of Nebraska, Lincoln; in 1950 honored by appointment as the Lord Moynihan lecturer of the Royal College of Surgeons of England; joint author with Drs. Waltman Walters and James T. Priestley of "Carcinoma and Other Malignant Lesions of the Stomach"; was drowned in Lake Pepin Sept. 6, aged 54, while swimming to recover a dinghy that had become detached from his cabin cruiser.

Jacobson, Conrad ⊕ Seattle; born in 1878; Johns Hopkins University School of Medicine, Baltimore, 1911; at one time on the faculty of the University of Minnesota Graduate School in Minneapolis; instructor of surgery at Harvard Medical School in Boston from 1912 to 1921; senior consultant in neurosurgery at the University of Washington Schools of Medicine and Dentistry; member of the founders group of the American Board of Surgery; consultant in surgery at the U. S. Public Health Service Hospital, Children's Orthopedic Hospital, and the King County Hospital; member of the American Association for the Surgery of Trauma and the American Association of Pathologists and Bacteriologists; past-president of the Seattle and Pacific Coast Surgical Societies; fellow of the American College of Surgeons; died in the Seattle General Hospital Sept. 21, aged 76, of cerebral embolism.

McCandlish, Howard Sheild ⊕ Washington, D. C.; born in Washington Aug. 7, 1891; University of Virginia Department of Medicine, Charlottesville, 1917; interned at the Philadelphia General Hospital; later entered residency training at the New York Nursery and Childs Hospital in New York City; served during World War I; member of the Medical Society of the State of New York; formerly associate professor of clinical obstetrics and gynecology at Cornell University Medical College in New York City, where he was on the staff of the New York Hospital, French Hospital, and the Doctors Hospital; served on the staff of the North Country Community Hospital in Glen Cove, N. Y.; died in the Garfield Memorial Hospital Aug. 26, aged 64, of uremia and carcinoma of the prostate.

Sanborn, Harvey B. ⊕ Rumford, R. I.; born March 8, 1881; Harvard Medical School, Boston, 1906; first president of the Rhode Island Society for Neurology and Psychiatry; served on the staff of the State Hospital for Mental Diseases in Howard; for many years practiced in Providence, where he served at one time as city physician, examining neuropsychiatrist for the U. S. Veterans Bureau, in the guidance department of the public schools, and on the staffs of the Butler Hospital, Charles V. Chapin Hospital, and the Rhode Island Hospital, where he died Sept. 10, aged 74, of cholelithiasis, arteriosclerotic heart disease, traumatic rupture of the stomach, and cerebral vascular accident.

Krell, Solomon ⊕ New York City; born April 5, 1897; University and Bellevue Hospital Medical College, New York City, 1923; assistant clinical professor of medicine at the New York Medical College, Flower and Fifth Avenue Hospitals; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; member of the American Heart Association; chairman of the board of censors of the Bronx County Medical Society; on the staffs of the Morrisania City Hospital, Home and Hospital of the Daughters of Jacob, and the Bronx Hospital, where he was chief cardiologist; died Sept. 5, aged 58, of coronary thrombosis.

Post, John James ⊕ Nashville, Tenn.; born in Woodside, N. Y., April 26, 1893; Columbia University College of Physicians and Surgeons, New York City, 1919; member of the Nashville Academy of Medicine; medical examiner of draft board number two in Greensboro, N. C., in 1941 and 1942, and draft board number six in Nashville from 1942 to 1946; after World War II was cited by the government for work on the draft boards; at one time city health director of Greensboro, N. C.; formerly medical director of Life and Casualty Insurance Company; died in Vanderbilt University Hospital Aug. 12, aged 62, of emphysema.

File, Richard Cushing ⊕ Decatur, Ill.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1942; member of the American Psychiatric Association; served during World War II; formerly on the staffs of the Peoria (Ill.) State Hospital and Pilgrim State Hospital in West Brentwood, N. Y.; at one time assistant superintendent and clinical director of Galesburg State Research Hospital in Galesburg; secretary and treasurer of the Decatur and Macon County Hospital staff; died in St. Luke's Hospital, Chicago, Aug. 30, aged 39, of glioma of the brain.

Anderson, Claude ⊕ Fort Myers, Fla.; Jefferson Medical College of Philadelphia, 1927; served during World War II; accidentally drowned July 28, aged 55.

⊕ Indicates Member of the American Medical Association.

GOVERNMENT SERVICES

AIR FORCE

Air Force Needs Career Physicians.—Air Force procurement figures indicate that the medical service has become increasingly attractive to physicians wishing to make a career of the military service. However, despite a significant increase in regulars, there are still a number of berths open. The Air Force Medical Service has become increasingly popular for reservists on active duty. At present requirements for reserve physicians on active duty have been met and further procurement has been temporarily suspended. This situation may change about March 1, 1956.

Physicians currently on duty with the Air Force number 3,190. Of these, 803 physicians are members of the regular component. The remainder are primarily reserve officers with an active duty retainability of about two years. About 45% of the physicians will be replaced through the Defense Department program for commissioning medical officers from the 1955 class of medical graduates who have unfulfilled military obligations. It is expected that the remaining 55% of the total FY 57 requirements for physicians will be supplied through Air Force recruitment of volunteers, both regular and reserve.

Award Distinguished Service Medal.—Brig. Gen. William J. Kennard was recently awarded the Distinguished Service medal by the chief of staff of the Air Force. The citation accompanying the award stated in part that General Kennard "distinguished himself by exceptionally meritorious service to the United States while serving in a position of great responsibility from 1 December 1951 to 14 October 1954. As Chief, Medical Branch and Senior Medical Officer of the North Atlantic Treaty Organization, Supreme Headquarters, Allied Powers in Europe, he . . . developed the organization of a Medical Committee which planned for the total health resources of the NATO nations. By his personal initiative, tact, and extensive knowledge of medical problems, General Kennard gained the assistance and cooperation of all countries concerned. In discharging his heavy responsibilities in such an outstanding manner, General Kennard has made a substantial contribution to the national security, and his actions reflect the highest credit upon himself and the United States Air Force."

Personal.—Col. Victor A. Byrnes, M. C., has been awarded the Legion of Merit. While assigned to the School of Aviation Medicine, Randolph Air Force Base, Texas, Colonel Byrnes conducted the original medical research to determine the extent to which an atomic flash would cause temporary blindness. As a result, the ability of personnel to discharge nighttime tasks, after being subject to the blinding effects of an atomic flash, was determined.——Col. Richard S. Fixott, M. C., was appointed chief of clinical medicine at the Air Force School of Aviation Medicine, Randolph Field, Texas, after completing a tour as surgeon of the Caribbean Air Command in the Canal Zone.

ARMY

General Gillespie Promoted.—Major Gen. James O. Gillespie, chief, professional division, office of the surgeon general, received the second star of this new rank in a ceremony in the surgeon general's office Oct. 20. General Gillespie was commissioned a first lieutenant in the Medical Officers Reserve Corps in 1925 and received his regular commission as a first lieutenant in 1927. In 1940 he was transferred to Manila, in the Philippine Islands, as chief of the medical service, Sternberg General Hospital. At the outbreak of the war with Japan, he became commanding officer of Sternberg.

General Gillespie was a prisoner of war of the Japanese for 40 months and was detained in prison camps in the Philippines, Formosa, Japan, and Manchuria until released in Mukden in August, 1945. In 1947 he completed postgraduate studies in internal medicine at the University of Minnesota and Harvard University.

In July, 1955, he was transferred to the office of the surgeon general as chief, professional services division. He has been awarded the Distinguished Service medal and the Legion of Merit. He is a diplomate of the American Board of Internal Medicine. One of his two sons is a senior medical student at Stanford University.

Personal.—Lieut. Col. Lee B. Grant, M. C., former chief, industrial hygiene and safety branch, preventive medicine division, Eighth Army, Far East Command, has been named deputy commander of the Army environmental health laboratory and chief of the occupational health division at the Army Chemical Center, Edgewood, Md.

PUBLIC HEALTH SERVICE

Length of Life Increases.—Average length of life in the United States has reached a record high of 68.8 years, a gain of more than 5 years since 1940, according to vital statistics compiled by the Public Health Service. The figures are based on death rates prevailing in 1953 and are contained in life tables published by the Department of Health, Education, and Welfare.

Women on the average live longer, outliving men by six years. The average lifetime expected for women at birth is 72.1 years, while the average for men is 66.1 years. This difference in the average duration of life for men and women has increased sharply since 1900, when females outlived males by an average of only two years.

White women at birth have an expectation of life of 72.9 years, compared to 66.8 years for white men. Nonwhite groups have a shorter average life—59.7 years for nonwhite men, and 64.4 years for nonwhite women. Although white persons outlive nonwhites by an average of eight years, the difference between the two groups has narrowed since 1900, when white persons lived about 15 years longer than nonwhites.

VETERANS ADMINISTRATION

Study of Veterans Training Program.—Severely disabled veterans of Korea are entering vocational rehabilitation training at a much greater rate than veterans with lesser disabilities. According to a VA study, one out of every five Korea veterans with disabilities rated at 60% or more have enrolled for training thus far, while only one out of 10 with disability ratings of less than 20% have taken training.

The VA study revealed also that the disabled trainees are aiming for high-level professional and managerial occupations in greater numbers than for any other type of jobs. So far 30,000 have entered training. The professional and managerial fields attracted 43% of trainees with orthopedic disabilities such as amputations; 40% of the blind; 52% of the hard-of-hearing; 54% of those with arrested tuberculosis; 47% of those with heart ailments; 43% of veterans who have had nervous or mental illnesses, and 40% of those with epilepsy. The average age of the disabled veterans was 25 at the time they entered training. The training program for disabled Korea veterans has been in operation for nearly five years and it still has a good number of years to go.

New Hospital Managers.—Dr. William J. McCarty, formerly manager of the VA Hospital at Vancouver, Wash., has been named manager of the VA Hospital at Wilkes-Barre, Pa., succeeding Dr. M. Herbert Fineberg, who will become manager of the VA Hospital in East Orange, N. J., succeeding Dr. Alfred P. Upshur, who will retire. Dr. Irving Eldridge, chief medical officer, VA Center, Bonham, Texas, will become manager of the VA Hospital at Fort Bayard to fill the vacancy created by the earlier transfer of Dr. Claude E. Carter to the VA Hospital in Butler, Pa.

DEATHS

Levinson, Abraham ⊕ Chicago; born in Linkovo, Russia, Aug. 25, 1888; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1911; received his bachelor of science degree from the University of Chicago in 1917; did postgraduate work at the University of Vienna in 1914, 1915, 1923, 1928, and 1930; professor of pediatrics, emeritus, at Northwestern University Medical School; professor of pediatrics at Cook County Graduate School of Medicine; specialist certified by the American Board of Pediatrics; vice-president of the Chicago Pediatric Society in 1935 and president in 1936; member of the American Academy of Pediatrics, Institute of Medicine of Chicago, American Association of the History of Medicine, Sigma Xi, and Phi Delta Epsilon; chairman of the committee on mental hygiene of the Illinois State Medical Society for many years; awarded a certificate of merit by the American Medical Association in 1932 for his scientific exhibit on cerebrospinal fluid in health and disease, and by the Illinois State Medical Society in 1936 for exhibit on experimental studies in cerebrospinal fluid and in 1940 for his exhibit on cerebral manifestations of the newborn; was given the Phi Lambda Kappa gold medal award for achievements in medical science in 1940 and the orator key of the History of Medicine Society of Tulane University School of Medicine in 1942; attending pediatrician at the Sarah Morris Hospital for Children, a unit of Michael Reese Hospital, where he was vice-president from 1933 to 1935, and chief of the pediatric department at the Mount Sinai Hospital, where he was vice-president from 1934 to 1936; attending pediatrician and chief of staff of the children's division of the Cook County Hospital; director of the Dr. Julian Levinson Research Foundation; his most notable achievements were in the field of pediatric neurology; described the Levinson phenomenon for the differential diagnosis between laryngeal diphtheria and laryngitis (1915); author of "Pediatric Nursing," translated into Hebrew in 1933, "Cerebrospinal Fluid in Health and Disease," and "The Mentally Retarded Child"; contributed chapters to systems of pediatrics; joint editor with Dr. I. A. Abt of "Pediatric Year Book" (1916-1920); died Sept. 17, aged 67, of acute myocardial infarction.

Gray, Howard Kramer ⊕ Rochester, Minn.; born in St. Louis Aug. 28, 1901; Harvard Medical School, Boston, 1927; interned at the Robert Packer Hospital in Sayre, Pa.; professor of surgery at University of Minnesota Graduate School; since 1948 member of the board of governors of the Mayo Clinic; certified by the National Board of Medical Examiners; specialist certified by the American Board of Surgery; member of the American Surgical Association, Southern Surgical Association, Western Surgical Association, Society of Clinical Surgery, and the American Association of Thoracic Surgery; fellow of the American College of Surgeons; awarded the Navy Commendation ribbon for devotion to duty and Legion of Merit for exceptionally meritorious conduct during World War II; consultant at the Colonial and St. Mary's hospitals; awarded the honorary degree of doctor of science in 1949 from Lafayette College, Easton, Pa., and the same degree in 1954 by the University of Nebraska, Lincoln; in 1950 honored by appointment as the Lord Moynihan lecturer of the Royal College of Surgeons of England; joint author with Drs. Waltman Walters and James T. Priestley of "Carcinoma and Other Malignant Lesions of the Stomach"; was drowned in Lake Pepin Sept. 6, aged 54, while swimming to recover a dinghy that had become detached from his cabin cruiser.

Jacobson, Conrad ⊕ Seattle; born in 1878; Johns Hopkins University School of Medicine, Baltimore, 1911; at one time on the faculty of the University of Minnesota Graduate School in Minneapolis; instructor of surgery at Harvard Medical School in Boston from 1912 to 1921; senior consultant in neurosurgery at the University of Washington Schools of Medicine and Dentistry; member of the founders group of the American Board of Surgery; consultant in surgery at the U. S. Public Health Service Hospital, Children's Orthopedic Hospital, and the King County Hospital; member of the American Association for the Surgery of Trauma and the American Association of Pathologists and Bacteriologists; past-president of the Seattle and Pacific Coast Surgical Societies; fellow of the American College of Surgeons; died in the Seattle General Hospital Sept. 21, aged 76, of cerebral embolism.

McCandlish, Howard Sheild ⊕ Washington, D. C.; born in Washington Aug. 7, 1891; University of Virginia Department of Medicine, Charlottesville, 1917; interned at the Philadelphia General Hospital; later entered residency training at the New York Nursery and Childs Hospital in New York City; served during World War I; member of the Medical Society of the State of New York; formerly associate professor of clinical obstetrics and gynecology at Cornell University Medical College in New York City, where he was on the staff of the New York Hospital, French Hospital, and the Doctors Hospital; served on the staff of the North Country Community Hospital in Glen Cove, N. Y.; died in the Garfield Memorial Hospital Aug. 26, aged 64, of uremia and carcinoma of the prostate.

Sanborn, Harvey B. ⊕ Rumford, R. I.; born March 8, 1881; Harvard Medical School, Boston, 1906; first president of the Rhode Island Society for Neurology and Psychiatry; served on the staff of the State Hospital for Mental Diseases in Howard; for many years practiced in Providence, where he served at one time as city physician, examining neuropsychiatrist for the U. S. Veterans Bureau, in the guidance department of the public schools, and on the staffs of the Butler Hospital, Charles V. Chapin Hospital, and the Rhode Island Hospital, where he died Sept. 10, aged 74, of cholelithiasis, arteriosclerotic heart disease, traumatic rupture of the stomach, and cerebral vascular accident.

Krell, Solomon ⊕ New York City; born April 5, 1897; University and Bellevue Hospital Medical College, New York City, 1923; assistant clinical professor of medicine at the New York Medical College, Flower and Fifth Avenue Hospitals; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; member of the American Heart Association; chairman of the board of censors of the Bronx County Medical Society; on the staffs of the Morrisania City Hospital, Home and Hospital of the Daughters of Jacob, and the Bronx Hospital, where he was chief cardiologist; died Sept. 5, aged 58, of coronary thrombosis.

Post, John James ⊕ Nashville, Tenn.; born in Woodside, N. Y., April 26, 1893; Columbia University College of Physicians and Surgeons, New York City, 1919; member of the Nashville Academy of Medicine; medical examiner of draft board number two in Greensboro, N. C., in 1941 and 1942, and draft board number six in Nashville from 1942 to 1946; after World War II was cited by the government for work on the draft boards; at one time city health director of Greensboro, N. C.; formerly medical director of Life and Casualty Insurance Company; died in Vanderbilt University Hospital Aug. 12, aged 62, of emphysema.

File, Richard Cushing ⊕ Decatur, Ill.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1942; member of the American Psychiatric Association; served during World War II; formerly on the staffs of the Peoria (Ill.) State Hospital and Pilgrim State Hospital in West Brentwood, N. Y.; at one time assistant superintendent and clinical director of Galesburg State Research Hospital in Galesburg; secretary and treasurer of the Decatur and Macon County Hospital staff; died in St. Luke's Hospital, Chicago, Aug. 30, aged 39, of glioma of the brain.

Anderson, Claude ⊕ Fort Myers, Fla.; Jefferson Medical College of Philadelphia, 1927; served during World War II; accidentally drowned July 28, aged 55.

⊕ Indicates Member of the American Medical Association.

Arko, Joseph Lawrence, Hibbing, Minn.; University of Minnesota Medical School, Minneapolis, 1939; served during World War II; member of the Minnesota State Medical Association; on the staff of the Hibbing General Hospital, where he died Sept. 9, aged 42, of osteosarcoma.

Atkins, George Hulings ⊕ Philadelphia; Jefferson Medical College of Philadelphia, 1902; also a graduate in pharmacy; on the courtesy staff of Methodist Episcopal Hospital, where he died Sept. 3, aged 83, of carcinoma.

Backus, Glenn Russell ⊕ Flint, Mich.; University of Michigan Medical School, Ann Arbor, 1930; president of the Michigan Pathological Society; specialist certified by the American Board of Pathology; member of the College of American Pathologists and the American Society of Clinical Pathologists; served during World War II; on the staffs of Hurley, McLaren, and St. Joseph hospitals; died in Marquette Sept. 5, aged 49, of acute pancreatitis.

Basile, Charles John ⊕ Garden City, N. Y.; New York Medical College and Flower Hospital, New York City, 1937; certified by the National Board of Medical Examiners; specialist certified by the American Board of Orthopaedic Surgery; fellow of the American College of Surgeons; on the staffs of the Meadowbrook Hospital in Hempstead, Nassau Hospital in Mineola, and the Mercy Hospital in Rockville Centre, N. Y., where he died July 21, aged 43, of glomerular nephritis.

Bennion, Percival Hale ⊕ White Plains, N. Y.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1902; member of the Minnesota State Medical Association; served on the staff of Midway Hospital in St. Paul; died June 30, aged 79, of a heart attack.

Boehning, Harold Henry, Abilene, Texas; Baylor University College of Medicine, Dallas, 1927; at one time a medical missionary in Korea; served on the staff of the Abilene State Hospital; died in Dallas Aug. 31, aged 61, of myocardial infarction.

Bonner, Kemp Plummer Battle ⊕ Morehead City, N. C.; Medical College of Virginia, Richmond, 1905; chairman of the Carteret County Board of Commissioners; councilor from the First District from 1910 to 1921; director of the state bureau of maternity and infancy from 1922 to 1924; served as secretary of the state board of medical examiners, as vice-president of the Federation of State Medical Boards of the United States, and as mayor; on the staff of the Morehead City Hospital; died July 1, aged 72, of heart disease.

Branom, Le Roy ⊕ Lincoln, Ill.; St. Louis University School of Medicine, 1919; past-president of the Logan County Medical Society and the Logan County Tuberculosis Association; on the staff of St. Clara's Hospital; died Sept. 11, aged 75, of fracture of the femur and cerebral hemorrhage.

Buikstra, Cyrus Renzo ⊕ Evansville, Ind.; University of Kansas School of Medicine, Kansas City, 1926; on the staff of St. Mary's, Deaconess, and Welborn hospitals; died Aug. 25, aged 57, of coronary thrombosis.

Burt, Robert T., Clarksville, Tenn.; Meharry Medical College, Nashville, 1897; died Aug. 16, aged 83, of acute dilatation of the heart and arteriosclerosis.

Camp, Raymond Short ⊕ Gainesville, Fla.; Emory (Ga.) University School of Medicine, 1942; specialist certified by the American Board of Pediatrics; member of the American Academy of Pediatrics; on the staff of the Alachua General Hospital; was shot and killed Aug. 29, aged 36.

Campbell, Perry Alfred ⊕ Richmond, Ind.; Indiana University School of Medicine, Indianapolis, 1940; served as an intern and resident at the Methodist Hospital in Indianapolis; formerly a resident at St. Luke's Hospital in Chicago; on the staff of the Reid Memorial Hospital; died July 26, aged 52, of coronary disease.

Cleaves, Harry Franklin ⊕ Seattle; Tufts College Medical School, Boston, 1908; formerly county health officer; died Sept. 15, aged 77, of an accidental fall.

Conahan, Frank Joseph ⊕ Bethlehem, Pa.; Medico-Chirurgical College of Philadelphia, 1915; past-president of the Northampton County Medical Society; served during World War I; formerly county medical director; on the staff of St. Luke's Hospital, where he died Sept. 10, aged 65, of cerebral thrombosis.

Conterman, Frank Beeby ⊕ Ilion, N. Y.; Syracuse University College of Medicine, 1910; past-president of the Herkimer County Medical Society; from 1916 to 1951 health officer for Ilion and from 1932 to 1951 for the town of German Flatts and the town of Columbia; member of the board of managers of the Pine Crest Sanatorium in Salisbury Center; on the staff of the Ilion Hospital, where he died Sept. 1, aged 66, of cerebral hemorrhage.

Cordray, Palmer Lloyd ⊕ Columbus, Ohio; Ohio State University College of Medicine, Columbus, 1923; on the staff of the Mount Carmel Hospital; died Sept. 9, aged 65, of heart disease.

Cornell, Joseph H. ⊕ Schenectady, N. Y.; Albany (N. Y.) Medical College, 1920; specialist certified by the American Board of Obstetrics and Gynecology; fellow of the American College of Surgeons; past-president of the Schenectady County Medical Society; on the staff of the Ellis Hospital; died Aug. 26, aged 59, of acute coronary thrombosis.

Cornthwaite, Miles J., Ballston Spa, N. Y.; Albany (N. Y.) Medical College, 1905; school physician; town of Milton health officer; chief of staff, Benedict Memorial Hospital; died Aug. 26, aged 76, of subacute endocarditis.

Crabtree, Peter ⊕ San Diego, Calif.; University of Michigan Medical School, Ann Arbor, 1937; at one time on the faculty of his alma mater; specialist certified by the American Board of surgery; fellow of the American College of Surgeons; served during World War II; consultant in surgery at the U. S. Naval Hospital; served on the staffs of the San Diego County General Hospital, Children's Hospital, Quintard Hospital, and the Mercy Hospital, where he died Sept. 8, aged 42, of carcinoma of the bladder.

Davis, Henry Levi ⊕ San Francisco; Tufts College Medical School, Boston, 1914; died July 6, aged 65, of carcinoma of the pancreas.

Denman, Peyton Roland ⊕ Houston, Texas; Tulane University of Louisiana School of Medicine, New Orleans, 1903; fellow of the American College of Surgeons; served during World War I; at various times member and past-president of the staff of the Memorial Hospital and on the staffs of the Jefferson Davis Hospital, where he was at one time on the executive board, and the Hermann Hospital, where he died Aug. 16, aged 76, of carcinoma of the prostate.

Dwyer, John Robert ⊕ Council Bluffs, Iowa; John A. Creighton Medical College, Omaha, 1912; formerly on the faculty of his alma mater; practiced in Omaha, where he was on the staffs of St. Joseph's Hospital and St. Catherine's Hospital, where he died July 26, aged 72, of hepatic cirrhosis.

Earl, William Henry, Cottage Grove, Ore.; University of Kansas School of Medicine, Kansas City, 1930; served as city health officer; on the staff of the Cottage Grove Hospital; died in Portland Aug. 19, aged 50, of subdural hematoma.

Ellis, William Wesley ⊕ Marceline, Mo.; Keokuk (Iowa) Medical College, 1895; died Sept. 3, aged 81, of diabetes mellitus.

Foster, Thomas Jefferson, De Soto, Ill.; St. Louis University School of Medicine, 1903; served as principal of the Ewing High School in Ewing, where he was professor of Latin and Greek at Ewing College; for many years had staff privileges at St. Mary's and Decatur and Macon County hospitals in Decatur, and the Holden Hospital in Carbondale, where he died Sept. 14, aged 84, of myocarditis.

Frederickson, John Wardell, Oklahoma City; University of Oklahoma School of Medicine, Oklahoma City, 1947; resident at the University Hospitals and the Veterans Administration Hospital; died Sept. 21, aged 31.

Gama, Pablo Jose, Los Angeles; Instituto Literario y Científico (Escuela de Medicina de San Luis Potosi) San Luis Potosi, Mexico, 1906; died in the Good Samaritan Hospital Sept. 22, aged 70, of cerebral hemorrhage.

Gardner, Joseph Leonard ⊕ Sulphur Springs, Ga.; Birmingham Medical College, 1913; killed Aug. 28, aged 66, when his automobile was struck by a truck.

Gerns, Theodore ⊕ Canton, Ohio; Universität Heidelberg Medizinische Fakultät, Baden, Germany, 1904; on the staffs of the Aultman, Mercy, and Timken-Mercy hospitals; served with the German Army during World War I; died Aug. 30, aged 74, of cancer of the prostate.

Grisier, Otto Woodson ⊕ Captain, U. S. Navy, retired, Santa Barbara, Calif.; Harvard Medical School, Boston, 1913; appointed an assistant surgeon in the Navy Sept. 6, 1917; promoted to captain in 1942; retired Sept. 1, 1946, by reason of physical disability; served during World Wars I and II; fellow of the American College of Surgeons; died in the Cottage Hospital Sept. 11, aged 68, of lobar pneumonia.

Guild, Carl Holmes ⊕ Shidler, Okla.; University of Oklahoma School of Medicine, Oklahoma City, 1918; served during World War I; for many years on the local school board; a director of the Shidler State Bank; died Sept. 15, aged 67.

Hall, Gilbert Hoke ⊕ Tulsa, Okla.; University and Bellevue Hospital Medical College, New York City, 1901; died in the Hillcrest Memorial Center Sept. 17, aged 83, of coronary thrombosis.

Hamilton, William Franklin ⊕ Van Nuys, Calif.; University of Louisville (Ky.) Medical Department, 1911; died Aug. 1, aged 71, of congestive heart disease.

Harris, Sigel Clance, Chicago; University of Illinois College of Medicine, Chicago, 1925; died Sept. 8, aged 69.

Kelly, Blair ⊕ Ferris, Ill.; Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1902; past-president of the Hancock County Medical Society; on the staff of the Memorial Hospital in Carthage; died in LaHarpe Aug. 23, aged 79, of coronary thrombosis.

Kincaid, Robert Lee, Crowell, Texas; Memphis (Tenn.) Hospital Medical College, 1900; president and director of the Crowell State Bank; died Sept. 12, aged 81, of injuries received in an automobile accident.

Kramer, Henry Frederick ⊕ Brooklyn, N. Y.; Columbia University College of Physicians and Surgeons, New York City, 1907; past-president of the New York Gastroenterological Society; on the staffs of the Brooklyn and Norwegian hospitals; died in New Milford, Conn., Sept. 12, aged 69, of cerebral accident.

Lacy, Joseph Barkley ⊕ Nathalie, Va.; Medical College of Virginia, Richmond, 1905; died in Richmond Aug. 12, aged 83.

Lang, Dorothy Mary, White Plains, N. Y.; University of Vermont College of Medicine, Burlington, 1924; specialist certified by the American Board of Pediatrics; fellow of the American Academy of Pediatrics; member of the American Psychosomatic Society and the American Academy of Allergy; attending pediatrician to the Grasslands Hospital in Valhalla and the White Plains Hospital; consulting pediatrician to the Phelps Memorial Hospital in Tarrytown; died in the Greenwich (Conn.) Hospital Sept. 18, aged 56, of carcinoma of the liver.

Levick, Julius Ernest ⊕ Houston, Texas; University of Manitoba Faculty of Medicine, Winnipeg, Manitoba, Canada, 1923; served during World War II; on the staff of the Veterans Administration Hospital; died Aug. 26, aged 56, of myocardial infarction and coronary occlusion.

Low-Beer, Bertram V. A. ⊕ San Francisco; born Dec. 11, 1900; Deutsche Universität Medizinische Fakultät, Prague, Czechoslovakia, 1924; professor of radiology at the University of California Medical School; specialist certified by the American Board of Radiology; member of the Radiological Society of North America; fellow of the American College of Radiology; author of "Clinical Uses of Radioactive Isotopes"; died in the University of California Hospital Sept. 25, aged 54, of myelogenous leukemia and toxic hepatitis.

Lynch, Russell Earl ⊕ St. Clair Shores, Mich.; University of Michigan Medical School, Ann Arbor, 1923; an associate member of the International College of Surgeons; past-president of the Macomb County Medical Society; mayor of the city of Center Line from 1934 to 1940; served on the staffs of the Holy Cross Hospitals in Detroit, and St. Joseph Hospital in Mount Clemens, where he was past-president of the staff; died Aug. 14, aged 54, of coronary thrombosis.

McCown, Percy Edward ⊕ Indianapolis; Indiana University School of Medicine, Indianapolis, 1908; specialist certified by the American Board of Urology; member of the American Urological Association; on the staffs of the Indianapolis General, Methodist, and St. Vincent's hospitals; died in Taunton, Mass., Aug. 8, aged 71, of cerebral hemorrhage.

McCoy, John C., Buckhannon, W. Va.; Maryland Medical College, Baltimore, 1905; county health officer; school doctor; on the staff of the Elizabeth Coplin Leonard Memorial Hospital; died Sept. 7, aged 79, of arteriosclerosis.

McFarland, Samuel Byrd, La Jolla, Calif.; Kansas City (Mo.) Homeopathic Medical College, 1901; at one time on the staff of the Veterans Administration Facility, Fort Miley, San Francisco; died Sept. 2, aged 80.

McGuffie, Charles Robert, Woodruff, W. Va.; Bennett Medical College, Chicago, 1915; died Sept. 8, aged 73.

McNaugher, Samuel ⊕ Pittsburgh; University of Pennsylvania Department of Medicine, Philadelphia, 1889; an associate member of the American Medical Association; on the staff of the Allegheny General Hospital; died Aug. 29, aged 92, of arteriosclerosis.

Meyers, Jerome, New York City; Albany (N. Y.) Medical College, 1907; member of the Medical Society of the State of New York and the American Public Health Association; served as senior district health officer at the Mott Haven Health Center; at one time on the faculty of his alma mater; died in the Doctor's Hospital Sept. 11, aged 72, of coronary thrombosis.

Miltimore, Edward, New York City; Albany (N. Y.) Medical College, 1905; member of the Medical Society of the State of New York; died in September, aged 74.

Moennighoff, Fritz Joseph ⊕ Monett, Mo.; Kansas City (Mo.) Medical College, 1905; served during World War I; on the staff of the St. Vincent Hospital; died Sept. 7, aged 74, of cerebral hemorrhage.

Moore, John Morgan ⊕ San Francisco; University of California Medical School, San Francisco, 1932; specialist certified by the American Board of Pediatrics; member of the American Academy of Pediatrics; at one time second vice-president of the San Francisco County Medical Society; on the staffs of the Hahnemann Hospital and the Children's Hospital, where he was medical director of the outpatient department, and where he died Sept. 6, aged 50, of myocardial infarction and coronary occlusion.

Mutter, Alfred Aloysius, Essex Fells, N. J.; University of Louisville (Ky.) Medical Department, 1905; an associate member of the American Medical Association; practiced in Kearny for many years, serving on the staff of the West Hudson Hospital, where he died Sept. 26, aged 71, of arteriosclerotic heart disease.

Nelson, Leo Arthur ⊕ Dallas, Texas; State University of Iowa College of Medicine, Iowa City, 1916; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; on the staffs of the Dallas Medical and Surgical Clinic-Hospital, Baylor University Hospital, and St. Paul's Hospital; died Aug. 18, aged 66, of arteriosclerosis.

Niell, Arthur Harry, Clover, S. C.; University of Virginia Department of Medicine, Charlottesville, 1912; died Aug. 25, aged 71, of carcinoma of the lung.

Nipple, Frederic E. ⊕ Mulberry, Kan.; University Medical College of Kansas City, Mo., 1906; died in Mount Carmel Hospital in Pittsburg Sept. 1, aged 80, of chronic intestinal nephritis.

Nowak, Stanley Alfred, Buffalo; University of Buffalo School of Medicine, 1927; interned at the Sisters of Charity Hospital, where he died Sept. 12, aged 51, of myocardial fibrosis.

Nowicki, Joseph Aloisius ⊕ Detroit; University of Buffalo School of Medicine, 1912; served during World War I; on the staff of the Grace Hospital; died in the Redford Branch of the Receiving Hospital Aug. 24, aged 66, of fracture of the skull when his automobile was struck by a train.

Nunnally, William Ord ⊕ Fairmont, W. Va.; Temple University School of Medicine, Philadelphia, 1942; interned at Methodist Hospital in Philadelphia; killed in an airplane accident Sept. 4, aged 37.

Oliver, Hudson Jones Jr., New York City; Howard University College of Medicine, Washington, D. C., 1913; member of the Medical Society of the State of New York; served during World War I; at one time associated with the Harlem Hospital; died in the Veterans Administration Hospital Sept. 20, aged 66, of cancer.

Onstine, Warner Abram ⊕ Taos, N. Mex.; Ohio Medical University, Columbus, 1896; on the staff of the Holy Cross Hospital; died Sept. 7, aged 83, of coronary thrombosis.

Overton, Marvin Cartmell Sr. ⊕ Lubbock, Texas; University of Louisville (Ky.) Medical Department, 1902; specialist certified by the American Board of Pediatrics; member of the American Academy of Pediatrics; past-president of the Lubbock-Crosby Counties Medical Society; on the staff of the Methodist Hospital; author of "Your Baby and Child"; died Sept. 1, aged 77, of myeloid metaplasia.

Page, Claude Weston ⊕ McKees Rocks, Pa.; Jefferson Medical College of Philadelphia, 1907; on the staffs of the Ohio Valley and St. John's hospitals; died Aug. 20, aged 72, of arteriosclerotic heart disease and coronary thrombosis.

Peck, Robert Ellsworth ⊕ Dunbarton, N. H.; Yale University School of Medicine, New Haven, Conn., 1893; for many years practiced in New Haven, Conn., where he was on the staff of the Grace-New Haven Community Hospital; died in the Moore General Hospital, Goffstown, N. H., July 6, aged 88, of carcinoma.

Phelan, Emma ⊕ Imperial, Mo.; St. Louis College of Physicians and Surgeons, 1909; at one time vice-president of St. Louis Medical Society; served on the staffs of the St. Louis County Hospital in Clayton and the Deaconess Hospital and St. John's Hospital in St. Louis, where she died Aug. 21, aged 79, of myocardial decompensation.

Pierce, Franklin Duane, Buffalo; Syracuse University College of Medicine, 1904; died Sept. 16, aged 78, of arteriosclerotic heart disease.

Reckefus, Charles Halwadt Jr. ⊕ Philadelphia; Jefferson Medical College of Philadelphia, 1893; member of the honorary staff at Lankenau Hospital, where he died Sept. 12, aged 84, of carcinoma of the pancreas.

Richards, Joseph Francis, Bellevue, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1917; died June 5, aged 61, of heart disease.

Roberts, William Humes ⊕ La Jolla, Calif.; Cooper Medical College, San Francisco, 1894; specialist certified by the American Board of Ophthalmology and the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology and the American Laryngological, Rhinological and Otological Society; fellow of the American College of Surgeons; an associate member of the American Medical Association; died Sept. 18, aged 83.

Robinson, James Lee ⊕ Lieutenant colonel, U. S. Army, retired, Los Angeles; Johns Hopkins University School of Medicine, Baltimore, 1908; entered the regular Army in 1911; retired May 9, 1920; became lieutenant colonel June 21, 1930; served during World War I; died in the Hollywood Presbyterian Hospital Sept. 15, aged 71, of heart disease.

Ruff, Adolph ⊕ Philadelphia; Temple University School of Medicine, Philadelphia, 1908; died Sept. 10, aged 72, of cerebral hemorrhage.

Sanders, William A., Antlers, Okla.; Eclectic Medical University, Kansas City, Mo., 1911; died Aug. 31, aged 69, of cancer.

Segal, Myer, Camden, N. J.; Medico-Chirurgical College of Philadelphia, 1912; died in the University Hospital, Philadelphia, Sept. 8, aged 65.

Senor, Samuel David ⊕ St. Joseph, Mo.; Northwestern Medical College, St. Joseph, 1889; from 1889 to 1906 taught general anatomy, anatomy of the central nervous system, and histology at Central, Northwestern, and Ensworth medical schools; died Sept. 21, aged 88, of cerebral hemorrhage.

Shannon, James Herbert, Washington, Pa.; Harvard Medical School, Boston, 1901; died in the Mercy Hospital, Pittsburgh, Aug. 5, aged 79, of bronchopneumonia and arteriosclerotic heart disease.

Snearly, George Earl, Houston, Texas; Chicago College of Medicine and Surgery, 1906; served during World War I; died in the Heights Hospital Sept. 14, aged 74, of coronary thrombosis with infarction.

Souders, John Cloyd ⊕ Rock Island, Ill.; State University of Iowa College of Medicine, Iowa City, 1904; past-president of the Rock Island County Medical Society; on the staff of St. Anthony's Hospital in Rock Island and the Lutheran Hospital in Moline; died Aug. 23, aged 82, of cancer.

Sprinkle, Davis Lee ⊕ Dallas, Texas; Baylor University College of Medicine, Dallas, 1930; member of the Radiological Society of North America; died in the Baylor University Hospital Aug. 27, aged 65, of a heart attack.

Stanley, Francis Guy ⊕ Beverly, Mass.; Harvard Medical School, Boston, 1909; served as chief surgeon at the Lynn and Union hospitals in Lynn; formerly city physician and school committeeman; died Aug. 24, aged 80, of coronary arteriosclerosis.

Supple, William Raymond ⊕ Cambridge, Mass.; Harvard Medical School, Boston, 1919; veteran of World War I; on the staff of the Charles Choate Memorial Hospital in Woburn, and Chester, Mount Auburn, and Sancta Maria hospitals; died Aug. 24, aged 62, of coronary disease.

Vaughan, James Maurice, Camden, N. J.; Howard University College of Medicine, Washington, D. C., 1914; member of the Medical Society of New Jersey; died June 17, aged 65, of a heart attack.

Wallin, Mathilda K. ⊕ Elmsford, N. Y.; Woman's Medical College of the New York Infirmary for Women and Children, New York City, 1893; an associate member of the American Medical Association; died in Dobbs Ferry (N. Y.) Hospital Sept. 19, aged 97, of arteriosclerotic heart disease, pneumonia, and hypertension.

Weidlein, Floyd Henry, Palisade, Colo. (licensed in Colorado in 1916); died in Grand Junction Aug. 12, aged 67, of cerebrovascular arteriosclerosis.

Wilcox, Clarence Robert ⊕ Jacksonville, Fla.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1904; on the staffs of the Duval Medical Center, St. Vincent's, and St. Luke's hospitals; died Aug. 2, aged 76.

Wood, William Patton ⊕ Strawberry Plains, Tenn.; University of Tennessee Medical Department, Nashville, 1894; past-president of the Knox County Medical Society and the Tennessee State Medical Association; a founder of the Fort Sanders Hospital, where he was on the staff for many years; died Sept. 3, aged 86, of arteriosclerotic heart disease.

Woodall, John Burleson, Port Arthur, Texas; Baylor University College of Medicine, Dallas, 1936; died in an automobile accident Aug. 30, aged 49.

Wright, John Alexander, Doswell, Va.; University College of Medicine, Richmond, 1898; surgeon for the Chesapeake and Ohio Railroad; died Sept. 2, aged 79, of cerebral thrombosis.

Yeisley, Carl Jay ⊕ Bakersfield, Calif.; University of Michigan Medical School, Ann Arbor, 1920; member of the American Academy of General Practice; past-president of the Ottawa County Medical Society; served during World War I; formerly practiced in Port Clinton, Ohio, where he was associated with the H. B. Magruder Memorial Hospital; died Aug. 3, aged 61.

FOREIGN LETTERS

DENMARK

Danish Medical Association.—The annual report of the Danish Medical Association describes the many activities it undertakes on behalf of its 5,417 members. It provides locum tenens (591 last year), negotiates the sales of practices, helps to arrange partnerships, issues certificates of proficiency to chiropodists and experts in speech defects, and arbitrates over disputes its members may have with other bodies. Under the national health insurance scheme a distinction is made between the drugs that can or cannot be prescribed at a reduced rate, and the association therefore has to deal every year with a crop of applications from the vendors of certain drugs anxious to have them put on the privileged list. Insurance clubs sometimes complain that physicians have erred in prescribing expensive drugs not on this privileged list, and, though most such complaints are justified, it is evident that the overwhelming majority of the medical profession obey both the spirit and the letter of the law in this respect. The few black sheep in the association's flock are dealt with gently but firmly, and, though none is mentioned by name in this report, enough is said about them to indicate how hard the path is made for the transgressor. An example is given of the slovenly drafting of a certificate that read: "According to the information available to me Mr. Doe has been unfit for work on account of pain in his back." The author of this noncommittal statement had added insult to injury by writing it on a plain sheet of paper instead of on the official form. Another physician repeatedly guilty of drafting slovenly certificates is warned that his expulsion from the association will be considered on the next occasion. Even trivial complaints have to be examined conscientiously before they are dismissed as, for example, when the author of an article complained that the editor of *Ugeskrift for læger* had refused to publish it. After the editor had given the association his excellent reasons for rejecting this article, the complainant was informed that, if the editor had no right to refuse an article sent him, the journal might as well dispense with an editor altogether.

Psittacosis (Ornithosis).—Volkert and Christensen in the *Danish Medical Bulletin* (vol. 2, no. 2, 1955) report routine complement fixation tests on several hundred patients, most of whom had atypical pneumonia. Among them, 94 were found to be serologically positive with titers of 1:30 to 1:960. Of 20 patients whose occupations included the handling of birds, 18 were serologically positive and 8 had clinical signs of psittacosis (ornithosis). There were no deaths in this series, and the disease ran a comparatively mild course, with an atypical fever as the only clinical sign. Relapses were common, particularly after the discontinuation of chemotherapy (chlortetracycline usually gave good results). One patient, who worked with a flock of pigeons heavily infected with psittacosis, fell ill five times in six months with pneumonia before its cause was discovered. Another patient had a second attack of psittacosis eight months after his first. The serologic titer varied greatly, ranging in most cases from 1:120 to 1:240, but, in two patients with unquestionable acute psittacosis, the titer did not exceed 1:30 during several weeks' observation. In most cases epidemiological studies incriminated birds, particularly caged birds and pigeons, but there were some cases in which no bird contact could be found. Dr. P. M. Sörensen in *Ugeskrift for læger* for Sept. 1, 1955, discusses the possibilities of interhuman transmission of psittacosis. In his rural practice he has observed five patients, all living within a radius of 1 km. The first was a man, aged 43, whose influenza-like symptoms (severe cough, rhonchi, and purulent expectoration) led to serologic tests and the discovery of a psittacosis titer of 1:1,720. His infection could not be traced to any bird, and he was probably the infecting agent of two middle-aged women who simultaneously fell ill about three weeks after spending several hours with him at close quarters. Here, too, no bird contact could be found. One of these women was evidently responsible for serologically demonstrable psittacosis in her mother and son. Sörensen suggests that, when a febrile disease of the respiratory tract fails to respond to penicillin, psittacosis should be suspected even when there is no diseased bird to suspect.

ENGLAND

Hypothermia for Postpartum Hemorrhage.—The use of hypothermia in the treatment of a patient with postpartum hemorrhage and apparently irreversible shock is described by Murray and Bruce in *Lancet* (2:699, 1955). A mobile obstetric team went to the home of a patient whose baby had been delivered by a general practitioner. As her systolic pressure was only 40 mm. Hg she was taken to the hospital, where, in spite of exploration, packing of the uterus, and blood transfusions containing norepinephrine, her condition slowly deteriorated. Within 12 hours she was moribund. Hysterectomy was considered to be the only way to stop the hemorrhage, other methods having failed, but, because the patient was unfit for operation under conventional anesthesia, it was decided to use hypothermia. A lytic cocktail containing 50 mg. of chlorpromazine, 50 mg. of promethazine, and 100 mg. of meperidine was injected intravenously in four equally divided doses. Cooling was also assisted by ice bags. Anesthesia was secured with thiopental, nitrous oxide, and oxygen. After operation of the patient rewarming was permitted spontaneously, and after a stormy postoperative period the patient recovered. It was considered that hypothermia, with its reduction in the oxygen requirement of the tissues, saved the life of this patient.

Milk-Borne Tuberculosis.—Dr. W. Lethem in the *Monthly Bulletin of the Ministry of Health Laboratory Service* (September, 1955, page 144) said that the case fatality rate for bovine tuberculosis in London had dropped from 136 in 1921 to 4 in 1953. This improvement is attributed to the fact that practically the whole of London's milk supply is now pasteurized or sterilized, whereas 30 years ago only about half was pasteurized. Deaths from this cause in children in rural districts also fell from 252 per million in 1921 to 12 in 1953. Nevertheless, untreated and untested milk is still being used in many rural districts. Last year many cases of tuberculous adenitis were reported in the Marlborough area, with 15 of these cases traced to one tuberculous cow. The proportion of milk produced from tubercle-free cows is now 58%. Tuberculosis has recently been cleared from four more areas in Great Britain: one in the northwest, one in mid-Wales, and two in Scotland. Since March, compulsory tuberculosis testing has been carried out in these areas and reactors have been slaughtered. About 80% of all herds are now in attested areas. According to the Ministry of Agriculture there are over 5,250,000 attested herds in Britain compared with 2,250,000 five years ago.

Allergy to Penicillin.—In the *British Medical Journal* of Aug. 20, B. J. O'Driscoll quotes the Minister of Health as saying, relative to allergy to penicillin, "The position with regard to desensitization is confused. Some dermatologists state roundly that it is useless." He then claims that a nurse can be desensitized to penicillin, although her desensitization may be somewhat more difficult than that of a patient. The Ministry of Health reports that many nurses have abandoned their career on account of sensitivity to penicillin. After describing a patient in whom the sensitivity was manifested by swelling of the eyelids when she worked in a room in which penicillin had been used, even though she did not handle it, the author outlines the day-to-day treatment until after the 27th day, when treatment ceased. The patient did not then react to 10,000 units intradermally, and a similar dose

---

The items in these letters are contributed by regular correspondents in the various foreign countries.

a year later produced no effect. Antihistamines are much more effective when given intramuscularly, and if given this way, it is possible to effect desensitization in a fortnight.

Lord Nuffield's Gift.—At the annual dinner of the Royal College of Obstetricians and Gynecologists in September in London, the president of the college announced that Lord Nuffield had personally donated $210,000 to the fund that is being raised to build, equip, and maintain the new headquarters of the college. Another $140,000 is being given for the same purpose through the Nuffield Provincial Hospitals Trust. The new headquarters will be named Nuffield College, Regent's Park. Lord Nuffield, who was present at the dinner, said that it was time that obstetrics and gynecology were included in his benefactions and that he wanted to do everything he could to make childbirth safe.

Poliomyelitis Vaccine Tests.—Trials of British-made poliomyelitis vaccines will be made this winter. By then any danger of epidemics of the disease will have passed. The trials will be on a small scale, but they will involve the inoculation of volunteers or children whose parents have given written consent. Before this, stringent laboratory tests of the safety of the vaccines will be made, and their potential efficacy will be tried in animals. At least two modifications of the Salk vaccine will be tested. Before the trials can take place, tests of the blood of the recipients are necessary to determine what amount, if any, of naturally acquired immunity they possess.

Blood Transfusions.—Miss Hornsby-Smith, parliamentary secretary for the Ministry of Health, said at Sheffield that 70 times more blood was being used in hospitals than before the war. To meet this demand more than one donation was required for every minute, day and night, throughout the year. Transfusion has made possible surgical operations that in many cases would not have been attempted previously. A few minutes of a donor's time may mean a lifetime to someone else.

ITALY

Histoplasmosis.—At a scientific meeting in Reggio Emilia in February, Professor Bettolo said that histoplasmosis, once believed to be limited to the tropics, has become common also in temperate climates. It is characterized by pharyngeal and gastrointestinal ulcers, hepatosplenomegaly, and suppurative lymphadenopathy. The disease is often fatal, but there is a benign form that produces calcified areas in the lungs. Diagnostic examinations include the complement deviation test, the intradermal test with histoplasmin, and biopsy. Intracellular microorganisms are found in the lungs, liver, other organs, and the blood. In differential diagnosis all forms of enterocolitis accompanied with hepatosplenomegaly should be considered. In temperate climates the differential diagnosis should also consider tuberculosis of the lungs and bones, brucellosis, pulmonary neoplasm, and leishmaniasis.

Tissue Therapy with Human Placenta.—At a meeting of the "Filippo Pacini" Medical Academy in Pistoia in May, Professor Petragnani said that human placental extracts were first used in the treatment and prophylaxis of exanthematous diseases; that they favor the cicatrization of the lesions of lupus; and that they strengthen the general condition of children with ringworm. Placental extract therapy also has a marked therapeutic and prophylactic value in older persons. In none of the many adults who were treated with extracts or suspensions of placenta were cancers observed, despite the fact that in some of them cancer had been suspected. Whether this is significant or not is not yet clear.

Syphilis.—At the international convention on venereology in Catania in April, it was brought out that today the clinical aspects of syphilis have markedly changed and that the classical entities are becoming progressively rarer. This has led many specialists to assume that the disease is disappearing. On the other hand, the new diagnostic laboratory tests are revealing numerous asymptomatic forms that are serologically positive.

NETHERLANDS

World Congress of Anesthesiologists.—The World Congress of Anesthesiologists was held at The Hague in September. Dr. Woolmer of Bristol, England, said that patients with tetanus, bulbar poliomyelitis, or poisoning by barbiturates or central nervous system depressants should be placed prone in the head-down position and ventilation secured either by a cabinet respirator or by changes in airway pressure. Tracheostomy may be necessary if controlled respiration is given for any length of time; 40 to 50 liters of air a minute at a pressure of 12 to 14 cm. H_2O should be given. Either the pH of the blood or the arterial carbon dioxide tension should be measured to serve as a guide to adequate ventilation. Other useful determinations are the minute volume of respired air and the pH of the urine. Every two hours the patient should be turned. Dr. Bromage of Chichester, England, said that there is an increase in vital capacity with artificial lowering of the blood pressure, except in patients with cardiac or pulmonary disease who are already dyspneic. Dr. Pedersen of Hillerfol, Denmark, interpreted many of the changes occurring during anesthesia in terms of the general adaptation syndrome. Thus, the excitement stage in classical anesthesia corresponds to the alarm reaction. The catabolic phase of the syndrome occurs after a major operation, with negative nitrogen and potassium balance, and hyperreactive patients may die in exhaustion if the catabolic phase is prolonged, or go into shock if the alarm reaction is not terminated.

At the meeting on artificial hibernation and hypothermia, Dr. Gray of Liverpool, England, described experiments suggesting that the good effects of inducing hypothermia in a patient are due to conservation of the stress responses for the recovery period, instead of allowing these responses to exhaust the patient at the time of operation. With induced hypothermia, the excretion of cortical steroids remains more or less at the preoperative level. Dr. Lucas of London, England, said that it was possible to cool animals to 32 F (0 C) for short periods without any harm, and he wondered if this could be done in man, as at this temperature the oxygen requirements are negligible. Professor Virtue of Denver, Colo., described the technique that he used, which consisted of cooling a subject to about 86 F (30 C) with ice water, using a muscle relaxant to control shivering, and warming the subject after the operation by diathermy. The electrocardiogram is recorded continuously and a defibrillator kept at hand in case auricular fibrillation develops.

At the section on hypotension in anesthesia, Dr. Rollason of Hull, England, said he had studied the electrocardiograms of patients before, during, and after hypotensive techniques but found no permanent changes. At the time when the blood pressure was lowered, ventricular systoles often appeared and changes occurred in the S-T segment and T waves but these were transient. Dr. Hale of Cleveland, Ohio, said he secured a fall in blood pressure by using an intravenous drip of Arfonad and simultaneous withdrawal of blood. Thrombosis is a serious drawback to all hypotensive techniques. Hypotension should only be produced if it gives the patient a better chance for survival—not because it is more convenient for the surgeon. Dr. Kern of Paris, France, said he had not had a single death in 600 cases, but he considered that 20% of the cases were failures. He did not use controlled respiration routinely because it reduced the effective amount of blood in circulation and the cardiac return. On the other hand, Dr. Enderby of London, England, said he used assisted respiration, because hypotension with suboxygenation was dangerous. Gentle positive pressure in the anesthetic apparatus also permits additional control of blood pressure. This view was supported by Dr. Organe, also of London, who said he used posture, respiratory control, and vasodilatation to control blood pressure. Dr. Gillies of Edinburgh, Scotland, said that hypotension in operations was best secured by a spinal block with procaine. Myocardial and renal hypoxia occur if the blood pressure falls below 60 mm. Hg. Posturing the patient is important. His general mortality figure was 3.5%, which compares well with 2.6% for all controls.

Anesthesia, using the new steroid Viadril intraveneously, was described by Dr. Guardagri of Los Angeles, Calif. By using a fast-running intravenous drip and a 2.5% solution, he overcomes the initial trouble of phlebothrombosis. Recovery is similar to that following therapy with thiopental, but Viadril appears to produce less respiratory depression than does thiopental. There is a synergism between the action of Viadril and opiates and anesthetic drugs, and when they are used smaller doses of muscle relaxants are needed. Some patients do not need a muscle relaxant if Viadril is given. Unlike thiopental, it is a true anesthetic agent. Dr. Guardagri has used it in cranial operations lasting nine hours.

Two new muscle relaxants were mentioned at the congress. Dr. Frey of Heidelberg, Germany, described the use of Prestonal in 1,000 patients. This acted within a minute or two, and the action lasted for five to seven minutes. The patient was mobile within half an hour. Although it acted rapidly like succinylcholine, pharmacologically it had a curare-like action. Another relaxant, Imbretil (hexamethylene-1,6-biscarbaminoylcholine bromide) was mentioned by Professor Brücke of Vienna, Austria. This had an initial action like succinylcholine, followed by a curare-like paralysis. Since its action lasts about 30 minutes, it might be of value in the treatment of tetanus.

NEW ZEALAND

Cancer.—Sir Stanford Cade and Prof. B. W. Windeyer of the British Empire Cancer Campaign visited the hospital centers in the main cities of Australia and New Zealand. In Dunedin in September, Sir Stanford Cade emphasized the fact that the patient suffering from cancer should be treated as a "unit," paying more attention to the person than to the mere removal of the pathological lesion. He opposed drastic amputations for advanced cancer of the stomach and produced convincing figures showing that longer survival has been obtained with partial removal and radiotherapy. The same principle applies to osteosarcoma of the leg in children. Professor Windeyer extolled the advantages and limitations of supervoltage radiotherapy units and the cobalt unit as compared with the conventional ones. His remarks were most timely, as the citizens of Dunedin have recently raised a fund to acquire a supervoltage unit for the Public Hospital.

New Zealanders Become Medicine "Addicts."—New Zealanders spent a record $8,500,000 in the last fiscal year appeasing their "increasingly unhealthy appetite for medicine," the annual report of the health department showed. The drug bill was $336,000 more than that for the previous year and three times the cost 10 years ago. Prescriptions dispensed under health benefit schemes now exceed 10,000,000 yearly. New Zealand has a population of 2,095,000.

PERU

Pyemia in Burned Children.—Dr. A. Bazan Altuna reports in *Review of the Children's Hospital* (vol. 17, no. 61, March, 1955) that since 1952 he has seen fatal pyemia caused by Pseudomonas aeruginosa in 35 of a series of 680 burned children. This complication usually developed between the third and fifth day after the accident and is related not to the extent of the burn but to the depth of it, since it occurred mainly in children with third degree burns. This infection in burned children appears in a fulminating and in an acute form. The fulminating form begins with the appearance of a green or blue-green secretion on the burned areas. Shortly thereafter, the burned surface becomes black and has the characteristic odor of P. aeruginosa infections; then, fever, dyspnea, abdominal distention, intense thirst, nervous irritability, delirium, headache, anorexia, and oliguria appear. After 24 to 36 hours the body temperature becomes subnormal and numerous and scattered, violaceous, subcutaneous nodules appear in areas of normal skin. Pearly vesicles appear at the center of these nodules and break, leaving a necrotic ulcer. The abdominal distension and dyspnea gradually increase, anuria succeeds the oliguria, and the blood pressure drops abruptly. Death occurs within 48 hours after the appearance of the nodules. Thirty-one of the children in this series had this form, and all died. In the acute form, which runs a less severe course, the nodules form and progress more slowly. If death occurs, it is several days after the appearance of the nodules. Dr. Bazan believes that pyemia in burned children passes through a prodromal phase in which only the local changes of the burned areas are detectable; a septicemic phase in which the systemic symptoms become prominent; and a third, or pyemic phase, which begins when the body temperature falls and the subcutaneous nodules appear. The blood culture was positive in all 35 cases. Smear cultures from the vesicles also revealed P. aeruginosa. Urine culture leads to the earliest diagnosis since it is positive in the prodromal phase, when there is still some hope of successful treatment. In this infection intense anemia and leukopenia with lymphocytopenia are the rule, despite the fact that every burned patient tends to show a leukocytosis. Although polymyxin is considered a specific for this type of infection, it has failed to cure it in burned children. Of the four children who had the acute form in this series, three in whom urine culture allowed an early diagnosis were saved by intensive treatment with a combination of polymyxin and tetracycline in large doses, started as soon as the diagnosis was made.

Insulin Coma.—Dr. Alfredo Saavedra's work on the psychopathological symptoms that arise on awakening from insulin coma has won him the Daniel A. Carrión award, annually given for the best Peruvian work in medical research. Dr. Saavedra analyzed the psychological data obtained from 19 psychotic patients who were interviewed as soon as they completely returned to consciousness after insulin coma. No person knew before undergoing insulin coma that he was going to be interviewed regarding his experiences on awakening. Some patients, when questioned, said that they had suffered many psychological symptoms, others only a few, but in no instance were symptoms entirely absent. No relationship between the psychological life of the patient prior to the onset of his psychosis and the type and pattern of the psychopathological symptoms on awakening was observed. These symptoms of alterations of consciousness in the order of their importance were: changes in perception, ideation, instinctive tendencies, affect, will, attention, consciousness of time, and memory. These symptoms were similar to those observed in patients poisoned with Opuntia cylindrica (a cactus) and *d*-lysergic acid diethylamide. They had no apparent relationship to the patient's psychosis. The delusions of five schizophrenic patients either persisted or increased in intensity during the awakening period in contrast to what happened to the other patients whose alterations of ideation were entirely unlike those they exhibited as components of their disease. The symptoms observed on awakening decreased in number and intensity as the patient recuperated and his mental condition improved. Of the 19 patients studied, 17 had schizophrenia, one syphilis with a depressive state, and one dipsomania with a hypophysial disorder.

Medical Insurance.—The chief executive of the Peruvian government has proposed a law requiring sociomedical insurance for employees. The Peruvian Medical Federation has gone on record as requesting that the law take into consideration the following conditions: 1. The insured must be free to choose his physician and his hospital. 2. The benefits of the insurance must be limited to the insured and not be transferable. 3. The insurance must cover all persons who are medically indigent. 4. The medical profession must be duly represented in all official committees having to do with the medical care of the insured. 5. The fees paid to physicians by the National Social Security Fund for professional services must be periodically readjusted. 6. Adequate medical services, including the development of preventive measures, must be organized. 7. The preventive and curative functions of the insurance should be coordinated with those of other governmental and private agencies. 8. The Social Insurance Agency must only foster the public health and avoid political, economic, or administrative influence. 9. The physicians should be appointed only on the basis of professional competitive examinations, and those who do not render efficient and adequate service must be dropped. 10. A minimum time for professional consultation and a *maximum number of patients that* a physician working for the Social Insurance Agency may attend per hour and per day must be established. 11. The principle of privileged communication must be maintained.

Erythropoietic Effect of Plasma.—At a symposium on recent advances in medicine at the Sanitas Institute of Lima, Dr. César Merino and his co-workers of the Instituto de Biología Andina reported that the plasma of persons living at high altitudes stimulates erythropoiesis. The authors gave 15 healthy medical students an intravenous injection of 200 cc. of plasma from persons who lived 4,000 to 5,000 m. (12,960-16,200 ft.) above sea level. On the second day after the plasma was given, the reticulocyte level began to rise, reaching a peak on the third day, with a count of 1.5 to 1.65%. The levels returned to normal on the fifth and sixth days. Before the injection, reticulocyte count in the students was 0.4 to 0.8%. Later, the same students were given 200 cc. of plasma from persons living at sea level, with no change in their reticulocyte level. Likewise, plasma of patients with polycythemia vera injected into some of these students had no stimulating effect on the hematopoietic system.

Homage to Hipólito Unanue.—The Faculty of Medicine of the National University of San Marcos of Lima held ceremonies celebrating the second centenary of the birth of Hipólito Unanue, a Peruvian physician and teacher in the days when Peru was ruled by Spain. He founded the Anatomic Amphitheater in 1792 and in 1811 founded and was first president of the Royal College of Medicine of San Fernando of Lima, which during the first period of the republic became the Faculty of Medicine of the University. He is, therefore, regarded as the father of Peruvian medicine. He was also a leader in the movement for Peruvian independence and became Secretary of the Treasury and a member of the congress that drafted the first constitution of the Peruvian Republic in 1823. He later became president of the congress. He died in 1831.

Sterility.—El Hogar de la Madre, the Peruvian institution that gives medical assistance to expectant mothers and their babies, is installing a special department for the investigation and treatment of sterility in both men and women.

SPAIN

Medical Education in Spain.—Dr. J. García Orcoyen of the University of Madrid said that one of the most serious problems of medical schools is the plethora of applicants without proper qualifications. Two years ago, the Faculties of Medicine of Spain established a special course to facilitate the selection of students, prior to their enrollment in medical school. This has done much to reduce the number of applicants. The teaching of medicine should be strictly objective, and greater emphasis must be placed on the needs of the general practitioner rather than on preparation for a specialty. It is important to develop in the medical student the tradition of the physician who is the friend and confidant of his patients.

SWITZERLAND

Drugs That Act on the Brain.—Dr. B. B. Brodie of the National Heart Institute of the United States reported to the Vaud Medical Society in Lausanne on recently discovered drugs that act on the brain. Enteramine (5-hydroxytryptamine) was found by Italian workers in the argentaffin cells of the stomach. In the United States a chemically identical substance was isolated in the blood and was called serotonin. This substance constricts smooth muscles and has an antidiuretic effect, probably through vasoconstriction in the renal vessels. Serotonin is found in thrombocytes and is thought to play an important part in arresting hemorrhage by virtue of its vasoconstricting power. More recent studies have shown that it is also present in the brain, especially in the hypothalamic region. Another substance, LSD (*d*-lysergic acid diethylamide), was obtained from rye ergot. Workers doing research on this product became affected with severe psychic symptoms that disappeared after a few days of rest. The symptoms were at first attributed to depression resulting from overwork, but they reappeared after the workers resumed contact with the product, and it was found that an injection of from 50 to 100 mg. of *d*-lysergic acid diethylamide produces symptoms of schizophrenia that last 10 to 12 hours. In Scotland, it was discovered that only *d*-lysergic acid diethylamide can block the strong vasoconstriction of the coronary arteries and isolated uterine muscle caused by serotonin.

Reserpine, which has an indol nucleus, as do serotonin and *d*-lysergic acid diethylamide, has produced clinical cure in many schizophrenics who had been considered incurable. Chlorpromazine was originally designed for use as an antihistaminic but was unsatisfactory in that role. Later, its multiple and remarkable effects on hypertension, nausea, and vomiting were discovered. There is today no other product that has such a diversity of uses. Dr. Brodie studied the potentiating action of chlorpromazine on ethyl alcohol and the barbiturates in mice. The duration of sleep induced by these products is prolonged by the administration of chlorpromazine without the development of narcosis. When stimulated, the animal is easily awakened; then, he goes to sleep again. Serotonin has the same potentiating action. The administration of *d*-lysergic acid diethylamide blocks the potentiating action of either of the two agents. Reserpine administered to a dog produces the appearance in the urine of a large quantity of 5-hydroxyindolacetic acid, which is a disintegration product of serotonin. This suggests that reserpine acts by liberating serotonin in the body. Presumably it is the serotonin from the cells in which it is naturally found. The concentration of serotonin is especially high in the intestine, 10 mcg. per gram of duodenum in the rabbit. After administration of reserpine in a dose of 1 to 5 mg. per kilogram of body weight, serotonin disappears from the cells in which it has been stored. The nervous system is probably not influenced by the liberation of serotonin from the intestine, but by the serotonin contained in the brain. Until three years ago it was impossible to measure the concentration of serotonin in the brain by chemical methods. With the help of the zenon lamp fluoroscope, however, it is possible to verify the disappearance of serotonin from the cerebral tissue after reserpine administration. The drug does not take effect for two or three hours. The pathogenic role of serotonin has been demonstrated in certain types of tumors.

Clinical Trials with Prednisone.—A. F. Muller (*Schweiz med. Wchnschr.* **85**:1001, 1955) gave prednisone to 16 patients as initial treatment or after a course of cortisone therapy. The usual dose gives good results in arthritis and causes no water retention, but it may cause slight euphoria. In lupus erythematosus disseminatus, results of therapy with the drug were variable: amelioration of the clinical symptoms could be accomplished with doses of the drug four times less than those of cortisone needed to achieve this effect, but the drug maintained the signs of hypercorticalism induced by cortisone without, however, aggravating them. In one patient, the hydrosaline retention induced by cortisone corrected itself slowly under prednisone therapy, and in another the disappearance of edema was spectacular. Muller treated a patient with idiopathic sprue and lymphosarcoma in acute exacerbation after withdrawal of corticotropin. On the first day 50 mg. of prednisone was given. This dose was diminished by 5 mg. every day until a dose of 15 mg. was reached. This therapy caused cessation of diarrhea, paling of the dermatosis, decrease in edema, and improvement in the general status. On the ninth day, however, bronchopneumonia with hyperpyrexia developed. Penicillin therapy made the patient afebrile within two days, but then she began to show aggressiveness, agitation, and visual hallucinations. Two days later, she died after occurrence of massive melena without prodromal signs. Autopsy showed numerous fresh ulcerations of the small intestine. Gastrointestinal hemorrhages caused by prednisone have often been reported, but this appears to be the first case in which ulcerations in the small intestine occurred. Muller observed results comparable to those obtained with cortisone in the treatment of thrombocytopenic purpura, asthma, arthrosis, and plasma cell myeloma. The lack of water and salt retention makes prednisone more suitable for therapy in cardiac, hypertensive, and elderly patients.

World Health Organization.—At the fifth regular session of the World Health Organization Regional Committee for Europe, held in Vienna in September, detailed plans for the following years were made and general guiding lines for World Health Organization policy in Europe during 1957 to 1960 were formulated. The principal aims will be to exchange experience in common health problems and to develop training facilities for medical and health personnel. The committee endorsed a training course on protection against radiation, to be held in November and December of this year. It is intended for physicists concerned with health problems and will be given in the Karolinska Hospital in Stockholm, Sweden. Subjects to be taught include laboratory design, the protection of factory workers, and the disposal of atomic wastes. After the resolution taken by the World Health Assembly that an attempt should be made to eradicate malaria all over the world, the committee agreed that close intergovernmental cooperation will be necessary if this goal is to be accomplished. Changes in health services necessitated by the aging of populations was informally discussed. In Sweden, with its almost 7 million inhabitants, about 10% of the population is above the official retiring age of 67 years, and this percentage is gradually increasing. In Great Britain, 75 to 80% of the general practitioners' house calls and 89% of those of the district nurse are for people over 65 years of age. The keynote of the discussion was that mere preservative care for older persons is no longer good enough. When ill, they should be treated with the same energy and skill as any other age group, and no effort should be spared to restore them to mobility and, as far as possible, to health. Admission to hospital is often a shock for an older person and because of this, as well as for financial reasons, older people should be treated at home if possible.

Prednisone Used in Rat.—Numerous researches undertaken to isolate a hormone analogous to but more active than cortisone led to the discovery of two synthetic steroids, prednisone and prednisolone. Since experiments performed in the rat have been few, Ducommun and his co-workers (*Schweiz. med. Wchnschr.* 85:1000, 1955) studied the anti-inflammatory properties of prednisone in dextran-induced experimental arthritis in the normal rat and the glyconeogenic and lympholytic effects in the adrenalectomized rat. The anti-inflammatory action of prednisone is four or five times that of cortisone. The catabolic or antianabolic effect is equally strong. The glyconeogenic effect increases with the dosage. Comparable results were obtained with 500 mcg. of prednisone and 2.5 mg. of cortisone. Clinical results have shown that prednisone differs from cortisone in that it has no effect on the electrolytes. Prednisone maintains life in a rat that has undergone adrenalectomy and that is then subjected to stress, even though no sodium chloride be added to the drinking water. This effect is in direct proportion to the dose given. Like the glucocorticoids and unlike aldosterone, prednisone can be the cause of atrophy of the lymphoid organs (thymus, spleen, and lymph nodes).

Digestive Hemorrhage After Salicylate Therapy.—Gastric hemorrhages and perforations occur after cortisone or phenylbutazone therapy, but the occurrence of these accidents after the administration of salicylates is not well recognized. P. Secretan (*Praxis* 44:837, 1955) reported the case of a man with a history of ulcer that had remained quiescent for seven years who unexpectedly had massive gastric hemorrhage after 12 days of salicylate therapy with a dose of 5 to 6 gm. per day. The author discusses the irritant effect of aspirin on the gastric mucosa and the cortisone-like mode of action of aspirin. The abruptness of the episode and especially the lack of premonitory epigastralgia speak against the local irritant effect of aspirin. If the conclusions of Roskam are correct and salicylates do act by stimulation of the adrenal cortex, directly or by way of the infundibulohypophysial system, then salicylates are very likely to cause accidents in the digestive tract identical to those that sometimes interfere with corticoid hormone therapy.

Treatment of Infantile Vomiting.—Vomiting is always a reflex action, whether it be caused by stimulation of the pharyngeal wall, irritation of the stomach or abdominal viscera, or by exaggerated excitability of the bulbar center. R. Martin Du-Pan (*Praxis* 44:835, 1955) treated 200 infants and children afflicted with nausea or vomiting from various causes with drops, tablets, or suppositories containing 0.5 to 1 mg. of chlorpromazine per kilogram of weight. Results were usually good and sometimes spectacular in the medical cases; after surgical narcosis, however, only half the children were benefited. It is suggested that the dose might have been too small to inhibit the vomiting reflex in the unfavorable cases.

TURKEY

Thrombocytopenic Purpura.—In the *Bulletin of Istanbul University Medical Faculty* Tavat and his co-workers described a 21-year-old woman whose allergy to quinine caused her to have hemorrhages, destruction of the bone marrow, and thrombocytopenic purpura. Two years prior to admission, because of a cold, she had taken tablets containing quinine. Four hours later she had nausea and vomited. The next day her skin itched, and red patches appeared on her arms, legs, and chest. This rash lasted four days. Ten days prior to admission she had another cold with a temperature of 102.2 F (39 C). She was given 0.1 gm. of quinine and 0.15 gm. of acetophenetidin three times daily. On the third day pinhead to lentil-sized patches developed on her arms, legs, and chest. There was no effusion, but soon the patches became purple. No itching, fever, or allergic symptoms were noted. On the day before admission a severe gingivitis appeared. She was given calcium and vitamins C and K. On the morning of admission she vomited dark, clotted blood and her stools were black. On admission purpuric patches that did not disappear on pressure were present on her arms, legs, and chest. Her gums were bleeding. Blood pressure was 95/70 mm. Hg. The erythrocyte count was 2,840,000 per cubic millimeter, with 55% hemoglobin; leukocyte count was 7,350 per cubic millimeter; and thrombocyte count was 79,000 per cubic millimeter. The bleeding time was 21.5 minutes; clotting began after 4 minutes and was complete in 11 minutes. Scanty clot retraction began after 10 hours and was complete in 48 hours. The prothrombin time was 16 seconds. The sedimentation rate was 88 after one hour. The stools contained blood. The myelogram revealed 40.4% polymorphonuclear neutrophils, 1.8% eosinophils, 0.2% basophils, 7.2% transitional cells, 5.8% metamyelocytes, 16% myelocytes, and 1% myeloblasts. The reticular cell count showed 0.4% plasmocytes, 1.4% lymphocytes, 0.2% macrophages, 17.3% normoblasts, 2% immature macroblasts, 3.4% mature macroblasts, 0.6% proerythroblasts, and 0.2% megakaryocytes. On the slide nine small megakaryocytes were seen. Their cytoplasm did not show homogeneous basophilic stripping, and they had no granules. Their nuclei had no lobuli, and they were not surrounded by thrombocytes. The gingivitis subsided after 24 hours. On the third hospital day there was a slight recurrence. The patient was given a minimal subcutaneous injection of 0.1% solution of quinine in her left arm. After 6 hours an edematous field, 4 cm. in diameter, developed, and after 24 hours the center of this area was necrotic. There was no change other than a little redness for two hours at the site of the control injection on the right arm. After 20 days in the hospital the thrombocyte count was 278,000 per cubic millimeter; the bleeding, coagulation, and clot retraction time were normal, and the patient was discharged.

Chyliform Pleurisy.—In *Bulletin of Istanbul University Medical Faculty* (vol. 14, no. 2) Soysal and Umur reported a case of chyliform pleurisy in a 7-year-old boy who for three months prior had a distended abdomen. There was no fever or abdominal pain. The abdominal distention had progressively increased, and edema had developed in his legs. On admission he had pitting edema of the face, lumbar region, and both legs. There was diminished thoracic fremitus at the base of the left side of the lung, and there was dulness to percussion from its apex to its base. The respiratory sounds were diminished, and souffles were heard over the right side of the lung. The pulse rate was 120 per minute and respiratory rate 40. The spleen was soft and was palpable 4 cm. beneath the costal margin. The erythrocyte count was 3,200,000 per cubic millimeter, with 55% hemoglobin, and the leukocyte count was 10,600 per cubic millimeter, with 68% neutrophils, 26% lymphocytes, and 6% eosinophils. The serum protein level was 4.9 gm. per 100 cc. The cadmium test was positive. A roentgenogram of the chest showed an upward directed diaphragm, an extensive hilus shadow, an enlarged cardiac air space, and a homogeneous opacity at the base of the left thoracic region. Puncture of the pleural cavity yielded 150 cc. of chylous fluid in which there were 80% lymphocytes, 20% polymorphonuclear leukocytes, and no acid-fast bacilli. Cultures of the fluid were sterile. There was a mild sedimentation, but no pellicle formed when the fluid was left standing. The reaction was alkaline, and the specific gravity was 1.010. The Rivalta reaction indicated that the fluid was an exudate rather than a transudate. In the first few days after admission the effusion tended to spread. Dyspnea, cyanosis, and edema increased, and there was retention of urine and tachycardia. Thoracentesis brought relief. The patient had 13 thoracenteses in three months. Four liters of chylous fluid was evacuated. With the exception of three days, the patient was afebrile during that period. He was given vitamins A, C, and D, calcium, streptomycin, and aminosalicylic acid. The chyliform fluid became serofibrinous and gradually disappeared, and the patient was discharged as improved.

Syncytioma Malignum.—In the *Bulletin of Istanbul University Medical Faculty* (vol. 14, no. 2) Erez and Arisan reported on seven patients with a syncytioma malignum. In three, uterine hemorrhage was caused by a hydatid mole; in three it followed delivery or spontaneous abortion; and one patient had a carcinoma of the vulva. The diagnosis was made from uterine scrapings or microscopic section after hysterectomy. Hysterectomy was performed on five patients and, in each of these, was followed by radiotherapy. In one patient laparotomy revealed an inoperable tumor, and the abdomen was closed. In four patients the Aschheim-Zondek and Friedman tests were made and were 4+. These cases illustrate the importance of currettage as a diagnostic as well as therapeutic measure. Although the biological urine tests are confirming adjuvants, the diagnosis is based on the histological examination of tissues or scrapings.

CORRESPONDENCE

INFORMATION REQUESTED ON ACUTE CORONARY THROMBOSIS

To the Editor:—Since the current illness of President Eisenhower has brought acute coronary thrombosis still more into the limelight than it has ever been before and since it is important to have more information on the prevalence of this disease in the United States today, it occurred to me that the medical profession might afford at least a partial answer. I am, therefore, requesting all physicians of this country to answer the following questions. Answers should be signed but names will be kept confidential. I realize that many doctors may not see this notice, but enough may answer to make the effort worthwhile. I also hope that physicians who do see the notice will advise others about it and try to get as many as possible to send in their answers. If you have encountered no cases during the month write nevertheless and please so state. Please answer part 1 anyway and part 2 also if you have time.

Part 1: Acute Coronary Thrombosis, Sept. 24 to Oct. 23.—How many patients with unquestionable acute coronary thrombosis in your practice began their illness during the month following the onset of the President's illness on Saturday morning early, Sept. 24, 1955 (therefore from Sept. 24 to Oct. 23 inclusive)? These should be considered your patients and listed as such even though seen or treated transiently by some other physician in the emergency, by a consultant later, or by the staff of some hospital in which the patient is being treated. To avoid duplication, if the physician answering this request is in one of these other three categories just mentioned I would like him to differentiate between the patients whom he has seen for others (which he should note also) and those who are strictly his own patients. In addition to the actual numbers, further data are requested: (1) total number of cases of unquestionable acute coronary thrombosis broken down into personal cases and patients of other doctors, both groups as treated in emergency, seen in consultation, and cared for in hospital; (2) sex and age; (3) occupations (list by number of cases in each occupation); (4) national origins; and (5) mortality date listing if death occurred in the first 24 hours, later in the first week, later in the second week, later in the third week, or later in the fourth week.

Part 2: Cases Prior to June 25.—How many of your own personal cases of unquestionable coronary thrombosis are alive in whom the acute attack antedated by three months the President's attack, that is, with onset before Saturday, June 25? Are you still caring for or seeing them at intervals, long or short? How many cases of other doctors do you see as a consultant (please list separately)? Please give (1) total number; (2) sex and age, and (3) occupations (list by number), including whether back at full-time or part-time work, invalided, or already retired before attack or retired on basis of age since. Your cooperation will be most helpful and greatly appreciated. Your answers may be mailed to the undersigned.

PAUL DUDLEY WHITE, M.D.
264 Beacon St.
Boston.

SKIN TESTING FOR PENICILLIN SENSITIVITY

To the Editor:—In the article "Feasibility of Skin Testing for Penicillin Sensitivity" published in THE JOURNAL, Sept. 17, 1955, page 191, Berger and Eisen present interesting data but unfortunately come to the wrong conclusion. They state that skin testing for penicillin sensitivity is unreliable and should be discarded, yet their patient in case 1 promptly developed anaphylactic shock after a skin test with 20 units of procaine penicillin. If such a penicillin-sensitive patient had not been tested but given a therapeutic dose of penicillin, which would be at least 15,000 times greater than the test dose used, a fatal reaction would most likely have resulted. This case alone is a concrete example of the value of skin testing for penicillin sensitivity. A careful history of previous sensitivity to penicillin is not the panacea for preventing reactions, as the authors indicate. Many patients have developed shock reactions as their first manifestation of penicillin allergy, and some reactions have proved fatal. The evidence is clear that skin testing for penicillin sensitivity not only is feasible but is occasionally a life-saving procedure. It will almost invariably detect the patient with reagins to penicillin who will develop a severe, immediate allergic shock or anaphylactic reaction following the administration of the antibiotic.

MONROE COLEMAN, M.D.
86 Prospect St.
Stamford, Conn.

TREATMENT FOR CEREBRAL THROMBOSIS

To the Editor:—It might prove useful to others for me to report briefly dramatic results in the recent treatment of a case of senile chorea with large doses of Reserpine. Having read the report of excellent results with this medication in Hutchinson's chorea by Lazarte and others (*Proc. Staff Meet. Mayo Clinic* 30:358 [Aug. 10] 1955), I felt justified in using it in a patient who recently had had a cerebral thrombosis involving the arterial supply to the basal ganglia. Her chorea was so severe that she could not feed herself and she had to be supported by two people to walk across the room. After a few days of treatment with a total daily dose of 14 mg. of Reserpine, the patient walked normally and had practically no involuntary movements. The dose has been reduced slowly to 8 mg. a day, and the patient has maintained her improvement. She had had her disability for about two months, and it was felt that this improvement was not merely coincidental with administration of Reserpine.

G. BRUCE LEMMON JR., M.D.
Vail-Lemmon Clinic
407 Professional Bldg.
Cherry and Kimbrough streets
Springfield, Mo.

LAW DEPARTMENT

MEDICOLEGAL ABSTRACTS

Malpractice: Necessity for Expert Testimony.—The plaintiff sued the defendant, a psychiatrist, for damages for malpractice and malicious persecution. Judgment was for the defendant, and the plaintiff appealed to the court of civil appeals of Texas. Until June 6, 1951, the defendant had never heard of the plaintiff. On that day a minister contacted the defendant and arranged for the defendant to see him and the plaintiff's wife on the following day. The following day the wife related that about four months before she had told her husband that she had committed adultery; that he had made her go with him to confront the man; that her husband had then shot the man in the hand; that since then he had accused her of other affairs, including an affair with her father-in-law; that he made her say that two of their children were not his; that he accused her of being a nymphomaniac and a pervert; that he had threatened to shoot her; that he had locked her in the bathroom and threatened to cut her throat; and that he had physically beaten her on several occasions. Finally, the wife related that she had taken steps to obtain a divorce. After the consultation, the defendant physician gave the wife a written diagnosis or statement to the effect that her husband was suffering from paranoid schizophrenia, that he was extremely dangerous to his wife, that he did not know right from wrong, and that he should be committed to an institution. The defendant never personally examined the plaintiff. The defendant testified that from what the wife told him, he could see that the plaintiff's mental furies were becoming more and more frequent, in an ever-tightening spiral; that an explosion was about due; and that he, the defendant, thought the plaintiff could only get better if removed at once from where he could see or come into contact with his wife. The defendant additionally testified that he expected at the time of the consultation that the plaintiff, in obedience to suspicions that are symptomatic of the plaintiff's mental illness, would shortly put in an appearance and that twice that afternoon the plaintiff did call at the defendant's office. As a result of the defendant's diagnosis, the plaintiff was charged with mental illness and was confined prior to his trial. The evidence adduced by the plaintiff on the issue of negligence was a statement by a psychiatrist, who was called as a witness, that under the same facts he did not think he would have concluded that the plaintiff was a paranoid schizophrenic.

The court of civil appeals, following the rule that the negligence of a doctor in making a diagnosis must be proved by the testimony of a doctor in the same field of practice, held that the statement of the plaintiff's witness was insufficient to establish negligence. The witness merely stated that he would not have reached the same conclusion that the defendant reached; he did not testify that the defendant was negligent in making his diagnosis. The court held that proof of negligence to sustain an action for malicious persecution was the same as in a malpractice action. If there was no wrong diagnosis there was no lack of probable cause. Since there was no proof of wrongful diagnosis, the court affirmed judgment for the defendant psychiatrist. *Daniels v. Finney, 262 S. W. (2d) 431 (Texas, 1953).*

Malpractice: Burns After Removal of Wart by Roentgen Therapy.—The plaintiff sued for damages for injuries to his left heel allegedly caused by the negligence of the defendant physician. From a judgment for the defendant, the plaintiff appealed to the Supreme Court of North Carolina. On Dec. 3, 1947, and on Jan. 7 and 14, 1948, the defendant gave the plaintiff, a boy of nine years of age, x-ray treatments for a wart on his left heel. The rays were filtered through an aluminum sheet and focused on the wart by a cone, the tip of which was placed about one-half inch above the wart. The skin area around the wart was protected by a lead shield. After the first treatment the area around the wart became pink-red and tender. About eight days after the last treatment the wart fell off, and the spot where it had been eventually healed. The surrounding area remained reddish and tender, however, and the plaintiff saw the defendant several times during March, 1948. Thereafter he did not see him until January, 1950, but during the intervening period the heel remained inflamed and irritated, resulting in an ulcer. At the time of the 1950 visit, the defendant lanced the plaintiff's heel and gave him penicillin. Subsequently the plaintiff underwent two operations, the second involving a skin graft, which were performed by other doctors. The instant suit was filed on the theory that the plaintiff's condition was caused by excessive irradiation administered by the defendant physician. At the trial there was considerable testimony by medical experts, some of which supported the position that the ulcerous condition on the plaintiff's heel could have been caused by the x-ray treatments. Other portions of the testimony indicated that people vary, according to their particular skin tissue structure, in their reactions to x-ray treatment. There is no feasible way to determine what x-ray strength a person may safely stand, but there is a maximum strength generally accepted as the limit for most people's skin. There was no evidence that the defendant had either improperly operated the machine or administered x-rays beyond the strengths generally accepted as safe.

The Supreme Court held that the evidence presented no question of negligence on the defendant's part. The Court pointed out that a physician who possesses the requisite skill and knowledge and exercises ordinary and reasonable skill in administering an x-ray treatment is not liable for burns resulting from such treatment. The *res ipsa loquitur* doctrine, said the Court, does not apply merely because the machine was under the exclusive control of the defendant. The doctrine is applied only where the injury involved would normally not result from what took place unless the person in control of the situation acted negligently. Evidence failed to show that this was true. In fact, it showed that the injury involved could happen regardless of the care exercised by the operator of the machine. The Court therefore affirmed the judgment for the defendant physician. *Nance v. Hitch, 76 S. E. 2d 461 (N. C., 1953).*

Malpractice: Surgeon's Reliance on Diagnosis of Referring Physician; Statute of Limitations.—The plaintiff filed suit against a physician and surgeon for injuries from the performance of a vasectomy by the defendant surgeon. At the conclusion of the evidence, the trial court directed a verdict against both the defendants, who then appealed to the Supreme Court of Colorado.

The plaintiff testified that prior to the operation he had entered into a definite contract with the defendant physician to have a circumcision performed on him and that he had agreed to let the defendant surgeon perform the operation. The physician's testimony on the other hand was considerably different. It indicated that the plaintiff, through his wife, gave his consent to have a "tube-tying" operation performed and that a vasectomy was in fact expertly performed. The defendant surgeon testified that he was briefed before the operation as to what was to be done, that the physician told him that he had obtained the written consent of both the plaintiff and his wife for a vasectomy (which he learned later was not true), and that he had then gone ahead with the operation. The defendants contended that the plaintiff's action was one of assault and battery and therefore subject to the one year statute of limitations. The plaintiff, on the other hand, contended that the action was for malpractice and therefore subject to the two year statute of limitations.

The Supreme Court admitted that where a surgeon performs an operation to which the patient has not consented, an unlawful battery is committed, but the Court went on to point out that such a situation also amounts to malpractice. The failure of a physician to perform the operation to which the patient has consented can be viewed as negligence in the performance of the duty owed to the patient. A suit brought on this basis, therefore, is for malpractice founded on negligence and is not barred by the statute of limitations governing batteries. The Court held, however, that there was sufficient conflict in the evidence as to just what operation the parties did intend, to warrant submission of that issue to the jury. A verdict should not have been directed for the plaintiff. The Court also found that there was no malpractice on the part of the defendant surgeon, who was entitled to rely on the physician's diagnosis and on the physician's statement that he had obtained the patient's consent. Accordingly, the Supreme Court reversed both judgments, ordering that the suit be dismissed against the surgeon and that there be a retrial of the suit against the physician. *Maercklein v. Smith, 266 P. (2d) 1095 (Colo., 1954).*

MISCELLANY

HEAL THYSELF

Richard Gordon

Reproduced with permission from Punch, *July 22, 1953.*—Ed.

The public always appear surprised that doctors should fall ill, as though hearing that a policeman's house had been burgled or the fire station had gone up in flames. Doctors go sick fairly often, though they suffer differently from anyone else: they have only one disease, which presents both a *mitis* and a *gravis* form.

The *mitis* phase is characterized clinically by the usual symptoms of malaise, headache, shivering, loss of appetite, coughing, and insomnia. It usually lasts several days, while the doctor does his surgery sitting in an overcoat and wonders why he's becoming so bad-tempered. He shakes off his symptoms like a wet dog and makes a diagnosis of draughts, late nights, or over-work.

When he wakes up one morning with black shapes in front of his eyes he sneaks down to the surgery in his dressing-gown and stealthily takes his temperature. A hundred and four! This immediately ushers in the *gravis* stage of the illness. He snatches a textbook from the shelf and nervously flicks over the pages. The first disease he spots is typhoid fever. *Prostration . . . headache . . . cough . . . backache . . .* he reads, running his finger quickly along the symptomatology. He realizes nervously he has every one of these afflictions, locks the door, and tries to feel his own spleen.

Admitting he is a desperately ill man he staggers to bed, bringing with him every medical and surgical textbook he can lay hands on. Once comfortable on the pillows he can see the problems of diagnosis more clearly. There are several more alarming diseases than typhoid to attract him, and after a while he becomes certain he is in the grip of either cholera, smallpox, or plague. He takes his pulse, inspects his tongue in his wife's hand-mirror, and carries out a careful search of his entire body-surface for spots. Finally he settles for malignant endocarditis, a diagnosis that in his finals would have had him thrown out of the examination room.

He next faces the problem of treatment. Doctors' houses are well supplied with drugs by the manufacturing chemists, who supplement their advertisements in the morning mail with transparently-wrapped packets of samples. These are always stuffed into the bathroom cabinet where old tooth-paste tubes, rusty razor blades, and worn fragments of soap accumulate. Dragging himself out of bed, he finds a bottle of bright green pills and wonders what they are. He swallows a few and rummages about until he comes across some aspirins. Several more coloured packets then attract him, and he starts mixing himself a therapeutic *hors d'œuvre.*

Doctors require different doses from the general public. The patient who goes away with a prescription marked sternly ONE TEASPOONFUL IN AN EGG-CUPFUL OF WATER EVERY FOUR HOURS is frightened enough to assemble spoon, egg-cup, and kitchen clock and takes the dose as precisely as starting a race. But in the profession pills are generally taken in doses of ONE HANDFUL NOW AND THEN (or if they are particularly small ones, ABOUT A DOZEN), medicine administered as A LARGE SWIG PRETTY FREQUENTLY, and ointments and embrocations assumedly labelled RUB ON VIGOROUSLY UNTIL ALARMED BY THE CONDITION OF THE SKIN.

The doctor's wife, who has recognized for some days that he is suffering from 'flu, suggests she summon one of his colleagues. But doctors, like animals, prefer to be ill alone. He refuses to see anyone; and when she insists on telephoning a rival practitioner the consultation is usually embarrassing and unhelpful:

"Why, hello, Bill! Laid up, eh? Been taking your own prescriptions, ha ha!"

"Hello, George! Decent of you to come. Needn't bother about the old bedside manner in the trade, eh, ha ha!"

"What's the matter with you, Bill?" asks the visiting doctor.

"Well, I think I've got polyarteritis nodosa, or possibly methemoglobinæmia."

"Go on!"

"Yes. What symptoms should I have?"

"Oh, sort of pains in the limbs and so on."

"That's it exactly!"

"Well, I hope you get better."

"Yes, so do I. So kind of you to come along professionally like this. Good-bye."

Doctors recover in a different way from ordinary people. A layman is told to stay in bed for an extra week, and take a fortnight at the seaside; but a doctor, after taking his temperature every half-hour for a day or so, suddenly discovers he is completely cured. He at once gets up and puts on his clothes, and either goes downstairs and takes the evening surgery or makes for the garden to catch up with his digging. As most doctors will admit, they can't afford to be ill: they're not registered as patients under the National Health Service.

MEDICAL FILM REVIEWS

Hard Brought Up: 16 mm., black and white, sound, showing time 41 minutes. Sponsored by the Mississippi State Department of Welfare with the cooperation of the Children's Bureau of the U. S. Department of Health, Education, and Welfare. Produced in 1954 by Nicholas C. Read, Potomac Film Producers, Inc., Washington, D. C. Procurable on purchase from Mental Health Materials Center, 1790 Broadway, New York 19.

This film makes some positive contributions to the understanding of the problem of juvenile delinquency, its genesis, and treatment. It stresses the importance of early recognition of maladjustment as a means of prevention. By drawing upon contrasting home situations, the film shows that the problem is not confined to slum areas, but may develop in a family that, to all appearances, offers favorable circumstances for normal growth and development. In the community portrayed, the judge of the juvenile court and the child welfare worker form a sympathetic team that provides professional help to children who get into trouble and to their families. The fact that the cast is drawn from the citizenry of Jackson, Miss., may be a drawback to its usefulness in all sections of the country, in that the accent and some of the cultural aspects are unfamiliar elsewhere. Second, the multiplicity of problems handled by the child welfare worker, each of which involves special skills, could well have been made the subject of several short presentations that would allow for an adequate discussion period. This film would lend itself to preprofessional student groups in medicine, law, psychology, social work, and the ministry. Church, civic, and parent groups would be appropriate audiences, as would educators and others who work with children. The film is well organized. The narration and photography are excellent.

Orbital Mucoceles: 16 mm., color, silent, showing time 22 minutes at sound speed. Prepared by Hans Von Leden, M.D., Northwestern University Medical School, Chicago, under the sponsorship of the William E. and Harriet B. Gould Foundation. Produced in 1955 by Mervin LaRue, Inc., Chicago. Procurable on rental ($5) or purchase ($165) from Hans Von Leden, M.D., 30 N. Michigan Ave., Chicago.

The purpose of this film is to describe the etiology of orbital mucoceles, to teach their diagnosis and differentiation from other orbital tumors, and to demonstrate the author's technique of their surgical removal. The diagnosis of an orbital mucocele is based upon a thorough ear, nose, and throat examination, complete eye studies, and roentgenograms. The differential diagnosis includes all neoplasms of the orbit. Three operative sequences are shown, two of which demonstrate removal of mucoceles and one showing the removal of a benign tumor. In the case of the mucoceles, the film shows the exenteration of the sinus and reconstruction of the nasal frontals using a tantalum funnel. The planning of the film is adequate; however, there is a paucity of titles. Two of the three operations could be advantageously omitted, thus shortening the film and rendering it more effective. This film will be of value to ear, nose, and throat and plastic surgeons.

The Termination of the Bile Duct: 16 mm., color, sound, showing time 16 minutes. Prepared by Julian A. Sterling, M.D., University of Pennsylvania, Philadelphia. Produced in 1955 by Davis & Geck, Inc., and Al Kane Productions, Inc. Procurable on loan ($3) or purchase ($100) from Al Kane Productions, Inc., 1411 Walnut St., Philadelphia.

This film is an anatomical study to demonstrate normal findings in untraumatized specimens of the termination of the bile duct. Photography, through methyl salicylate solution, depicts the termination of the bile duct and indicates the relationship of the course of the duct, the papillary sphincter, and the "common channel." The characteristics of the duct termination in choledocholithiasis and in pancreatitis are also visualized. It is indicated that the termination for the bile duct is not as an ampulla (normal in 5%) but a papilla. It is observed that the bile duct terminates through a papilla as described by Oddi, Dardinski, Boyden, and others. Forty per cent of specimens were found to have separate orifices for bile and pancreatic ducts. The other 60% were evaluated further with regard to the significance of the common channel. When an ampulla was present as the common channel within the papilla, 5% interductal reflux was possible. In most other cases it is demonstrated that the presence of a common channel does not signify the existence of interductal reflux. The author has used colored drawings and partly cleared specimens to demonstrate the anatomical points. Some of the drawings are not very skillfully done and detract somewhat from the appearance of the film. The ducts, as illustrated in the drawings, are quite small, perhaps corresponding to the small size of the duct in fixed specimens. This film is primarily of interest to surgeons interested in the biliary tract and could also be used for students of anatomy.

Industrial Dermatitis: 16 mm., black and white, sound, showing time 29 minutes. Produced by the Film Producers Guild with the cooperation of the St. Johns Hospital for Diseases of the Skin and Middlesex Hospital, London. Procurable on loan from Imperial Chemical Industries (New York) Ltd., Film Library, 488 Madison Ave., New York 22.

This film begins with a sequence in which a young woman with a dermatitis on the hands visits a consultant. In the course of diagnosis of her case, some basic principles of dermatology including patch-testing are shown. Three years later, the woman is shown as a medical student in a school where the consultant is giving a lecture on dermatology. He first projects a film showing by animated diagram, the anatomy, physiology, and special susceptibilities and characteristics of the skin, and then another that contrasts various specifically industrial or occupational dermatoses with other similar types to stress the differential diagnosis. The presentation of the anatomy of the skin is excellent, as is the body of the picture showing real industrial dermatoses in connection with the industries in which they may be acquired. However, in several instances, diagnoses are used referring to occupational yeast and fungous infections. These concepts are at present refuted and completely outdated. If the long introductory sequence were completely cut and replaced with a shorter more pertinent introduction, and the erroneous diagnoses of different skin diseases were corrected, this film would be a worthwhile presentation to junior medical students. In its present form, it is not recommended.

Technic for Splenectomy: 16 mm., color, sound, showing time 24 minutes. Prepared by John L. Madden, M.D., St. Clare's Hospital, New York. Produced in 1955 by and procurable on rental or purchase from Sturgis Grant Productions, Inc., 322 E. 44th St., New York 17.

This film depicts clearly an accepted technique for splenectomy on a 53-year-old man with hypersplenism and selective erythrocytopenia and thrombocytopenia. A routine general exploration of intraperitoneal viscera revealed no gross abnormalities, but an accessory splenic nodule was found in the proximal portion of the gastrosplenic ligament. Mobilization of the greatly enlarged spleen is continued with division of the gastrocolic ligament and of a portion of the gastrosplenic; the accessory splenic nodule is removed. The spleen is further mobilized, the lienorenal ligament is divided, and the vasa brevia are clamped and cut. With division of the splenic artery and vein, the specimen is removed. The author is to be complimented for emphasizing the importance of proper immobilization before the actual removal of the organ is undertaken. The animated diagram that reviews the horizontal disposition of the peritoneum, illustrating a cross section of the abdominal cavity seen from below, adds appreciably in the orientation, particularly as it pertains to the ligamentous attachments of the spleen. Tissues are handled gently and hemostasis is adequate. A minor criticism that in no way detracts from the film is the usage of blunt dissection in lysis of the left leaf of the lienorenal ligament. It would have added much had exposure of this structure been possible and sharp dissection utilized in this particular step. This picture can be recommended to surgeons interested in the technique of splenectomy.

NEW FILM ADDED TO A.M.A. MOTION PICTURE LIBRARY

Eat for Health: 16 mm., color, sound, showing time 11 minutes. Produced in 1954 by Encyclopaedia Britannica Films in collaboration with James R. Wilson, M.D., Secretary, Council on Foods and Nutrition, American Medical Association. Procurable on loan (service charge $2) from Committee on Motion Pictures and Medical Television, American Medical Association, 535 N. Dearborn St., Chicago 10.

This film introduces a new approach to teaching children to eat a well-balanced diet. Using the five fingers of the hand as an always available check-off device, the film identifies a food group with each finger: bread and butter or margarine, milk and cheese, meat and eggs, vegetables, and fruits. This is the first film to present a food classification based on five rather than seven groups. Five groups lend themselves to finger-counting, which is an advantage with children who must be constantly reminded of the various food groups. In presenting the reasons for eating a balanced diet, the story shows a number of the leading child's schoolmates, who have profited from each of these particular foods. This film could be used most effectively at the junior high school level, although children in the intermediate grades would probably understand with the assistance of a teacher. It could also be used with adult groups to illustrate patterns for food selection and to provide a basis for aiding children with their eating problems.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

The Action of Glucagon on the Blood Sugar in Normal and Diabetic Persons. D. Hubble. Diabetes 4:197-202 (May-June) 1955 [New York].

Purified glucagon was given by intravenous injection to 17 unselected diabetic patients of the ages between 21 and 74 years whose weights varied between 84 lb. (38.1 kg.) and 258 lb. (117 kg.). The blood sugar curves then were compared with those obtained by the Himsworth insulin-glucose tolerance test, the insulin tolerance test, and the glucose tolerance test. None of these patients had received insulin therapy, and all of them had been at rest in the hospital for three to five days on basal diets related to their surface area and with a carbohydrate content varying from 180 to 300 gm. (57.5% of total calories). Glucagon was also administered intravenously to three persons without metabolic disease in order to establish a normal response for this method. The response to intravenous glucagon also was determined in three diabetic children who had already been stabilized by insulin and in whom spontaneous variations of as much as 300 mg. per 100 cc. or more in a 24-hour period, as defined by Kirtley for his insulin-sensitive patients, had been observed. Glucagon raises the blood sugar both in healthy and in diabetic persons. The hyperglycemic response to glucagon in unstable, insulin-sensitive, young diabetics is small, but it may be equally low in diabetics of other types, whether assessed clinically or by the Himsworth test. The extent of the rise in blood sugar in diabetic patients is probably dependent on the amount of glycogen stored in the liver at the time of the test and can be enhanced by increasing the deposition of hepatic glycogen. The rate of subsidence of the hyperglycemia is an individual response, since it closely parallels the fall in the glucose tolerance curve. In three thyrotoxic diabetic patients, however, the fall was much faster after glucagon hyperglycemia than after alimentary hyperglycemia. In two diabetic patients and in three nondiabetic patients, the effect of glucagon and epinephrine, at first separately and then together, was investigated by blood sugar response. Results showed that the hyperglycemic response to epinephrine and glucagon injected simultaneously is greater than when either is injected alone, but the peak response is delayed by at least half an hour.

Syndrome of Idiopathic Hyperlipemia, Mild Diabetes Mellitus, and Severe Vascular Damage. D. Adlersberg and C.-I. Wang. Diabetes 4:210-218 (May-June) 1955 [New York].

The syndrome of idiopathic hyperlipemia, mild diabetes mellitus, and severe vascular damage was observed in three men and two women. One woman had a normal body weight, while the other four patients were moderately to severely obese. The duration of the syndrome varied from four to seven years. Four patients, two of whom had mild hypertension, showed evidence of coronary artery disease and myocardial infarction; the fifth had thrombosis of the central retinal vein and loss of vision in one eye. Extensive hyperlipemia was noted in all five patients and was characterized by persistent milky serum. There was marked elevation of both neutral fat and total lipids, with elevated levels of free and esterified cholesterol and phospholipids. Restriction of calories and of dietary fat, combined in two patients with the use of insulin, resulted in a decided gradual reduction of serum neutral fat and total lipids as well as the other serum lipid fractions. One patient had severe acute pancreatitis with eruptive xanthoma. Two other patients had eruptive xanthoma that subsided with improved control of diabetes and lowering of serum lipids. The clinical manifestations and the abnormalities of lipid metabolism in the authors' patients with idiopathic hyperlipemia were compared with those in two women aged 43 and 48 years, respectively, who had hypercholesteremia of the xanthoma tendinosum type associated with diabetes mellitus. Hypercholesteremic xanthomatosis differs from idiopathic hyperlipemia in the clear appearance of the serum and in absent or only moderately elevated serum neutral fats. While only one of the patients with idiopathic hyperlipemia had a small pinpoint-sized lid xanthelasma, both patients with hypercholesteremic xanthomatosis had extensive lid xanthelasmas. In contrast to the three patients with eruptive xanthoma in the group with idiopathic hyperlipemia, neither one of the two patients with hypercholesteremic xanthomatosis had eruptive xanthoma. It is, therefore, advisable to separate idiopathic hyperlipemia associated with diabetes mellitus from xanthomatosis associated with diabetes mellitus on both clinical and chemical grounds. Although the alteration of serum lipids observed in idiopathic hyperlipemia with diabetes mellitus represents extreme changes of lipid metabolism, similar abnormalities of a lesser degree are probably present in other diabetic patients.

Abscess of the Pituitary Gland in a Diabetic Patient: The Houssay Phenomenon in Man. J. H. Brenner. Diabetes 4:223-226 (May-June) 1955 [New York].

A 62-year-old woman who had had diabetes mellitus for seven years was admitted to the department of internal medicine of the Jewish Hospital, Cincinnati, suffering from septicemia. She died on the eighth hospital day. At first she required a small amount of insulin, but during the last few days of life she showed the Houssay phenomenon, in that she had a tendency to spontaneous hypoglycemia. Autopsy revealed virtually complete destruction of the pituitary gland by an abscess. There were widespread metastatic abscesses in the kidneys. A smear of the renal pus showed gram-negative bacilli, morphologically resembling Escherichia coli. The smear from a spinal tap that was made a few hours before the patient's death showed the same kind of bacilli; Esch. coli was probably the offending agent. Fever may have masked the metabolic response to destruction of the pituitary at an earlier date. The unusual observation of hypoglycemia after a relatively short fast in a patient whose fever has persisted can only be interpreted as caused by a severe destruction of the anterior pituitary gland with inadequate function of the cellular remnants. Death was probably caused directly by prolonged hypoglycemia.

Hepatic Coma: A Clinical and Pathologic Study. W. T. Foulk, H. R. Butt, M. H. Stauffer and others. Gastroenterology 29:171-183 (Aug.) 1955 [Baltimore].

This report is based on the records of 52 consecutive patients who were seen in hepatic coma at the Mayo Clinic. The diagnosis was cirrhosis in 23 of these patients, one of whom also had hemochromatosis. Nine patients had hepatitis; 4 had biliary cirrhosis secondary to common-duct stricture or stone; 11 had obstructive jaundice; and 5 had neoplastic malignant involvement or abscess of the liver. Ten of the 23 patients with cirrhosis had histories of an excessive intake of alcohol for years, 4 drank moderately, and 9 not at all. Of the remaining 29 patients, only one had drunk to excess. Spider angiomas were noted in only 12 of the 52 patients. Fetor hepaticus was noted in 24 patients. Many of the patients had had previous jaundice, and nearly all were icteric at the time of coma. Hepatic coma is seen most frequently in patients with primary parenchymal hepatic dis-

---

The place of publication of the periodicals appears in brackets preceding each abstract.

Periodicals on file in the Library of the American Medical Association may be borrowed by members of the Association or its student organization and by individuals in continental United States or Canada who subscribe to its scientific periodicals. Requests for periodicals should be addressed "Library, American Medical Association." Periodical files cover 1946 to date only, and no photoduplication services are available. No charge is made to members, but the fee for others is 15 cents in stamps for each item. Only three periodicals may be borrowed at one time, and they must not be kept longer than five days. Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

ease, but it occurs as well in patients with obstructive jaundice or neoplastic disease of the liver. Although jaundice is commonly observed during hepatic coma, it is not a necessary accompaniment of this state. Impending hepatic coma must be suspected in any patient who has hepatic disease and who shows aberrations of consciousness. The onset may be insidious or rapid; often the disturbance first appears as confusion, restlessness or even wild agitation, during which the patient may become disoriented and dysarthric and may perform inappropriate acts or give evidence of paranoid ideas. Drowsiness supervenes and progresses to stupor and coma. With disturbances of consciousness, reflex changes and other neurological disturbances develop. No close correlation was noted between the clinical or laboratory evidence of severe hepatic dysfunction and the development of coma. Hemorrhage, infection, paracentesis, and surgical procedures appeared to be responsible for the onset of coma in some. Autopsy was done in 44 of the 47 cases in which death occurred. Pathological evidence of recent parenchymal damage was striking in 14 of the 20 cases in which the diagnosis at autopsy was cirrhosis; such evidence was present in all cases in which death was the result of fulminating hepatitis, obstruction of the biliary tract, or hepatic neoplasm. The mean weight of the liver was smallest in those in which fulminating hepatitis was the cause of hepatic insufficiency. The largest livers were found in patients in whom obstruction of the biliary tract or metastatic neoplasm accounted for the hepatic coma. Close observation of minor alterations is necessary to avert progressive deterioration. Early correction of abnormalities of fluid and electrolytic balance are likely to be ignored if the prognosis is viewed pessimistically. Fluid must be administered intravenously, while at the same time the physician must guard against overhydration. Recent studies relating to the role of ammonia in the genesis of hepatic coma suggest that the intake of protein should be reduced to a level of 60 gm. daily in patients with hepatic disease who manifest neurological abnormalities or disturbed consciousness. Controlled studies of various therapeutic programs on a scale sufficient to be conclusive are difficult to carry out in a situation so critical as hepatic coma. When a patient recovers, it usually is impossible to know what factors were responsible for the favorable outcome.

Chlorpromazine (Thorazine) Hepatitis. G. McHardy, R. McHardy and S. Canale. Gastroenterology **29:**184-188 (Aug.) 1955 [Baltimore].

An obstructive type of juandice, painless, associated with the characteristic liver profile and with histopathological findings of cholestasis in the biliary canaliculi, was observed following administration of chlorpromazine. A 59-year-old woman was given 40 mg. of chlorpromazine daily because of intense anxiety. Thirteen days later she had improved symptomatically but mild aphthous stomatitis had developed; the dosage was reduced to 20 mg. daily. Several days later, new symptoms, including headache, nasal congestion, vertigo, and nausea, led the otolaryngologist to suggest allergic rhinitis. The peripheral blood showed 7% eosinophils. Jaundice was obvious five days later. A tentative diagnosis of obstructive jaundice, presumably calculous in origin, was made, and the possibility of an obstructing neoplasm was considered. Jaundice became more intense, stools were acholic, and purpuric areas developed over the body. On exploratory laparotomy the gallbladder and common bile duct appeared normal. Nodes in the vicinity of the common duct appeared hyperplastic; frozen section histological examination confirmed benign hyperplasia. Operative cholangiography revealed normal common duct, hepatic ducts, and biliary radicles. Abnormal bleeding of the wound occurred postoperatively. The patient's convalescence was slow. Differentiation between chlorpromazine-induced jaundice and surgical jaundice is not positive unless resolution occurs promptly after discontinuance of the drug. The wound-bleeding tendency recorded in chlorpromazine-jaundiced patients is not explainable on the basis of hypoprothrombinemia, coagulation defect, abnormal bleeding time, or capillary fragility. The patient had an allergic tendency, suggesting hypersensitivity. The diagnosis of chlorpromazine hepatitis should be suspected when the symptoms and signs of obstructive jaundice occur during the first four weeks of chlorpromazine therapy. Apparently, it cannot be conclusively differentiated from extrahepatic obstructive jaundice by any presently available diagnostic methods. An allergic history and presence of eosinophilia may further incriminate chlorpromazine as the etiological factor.

Multiarticular Injections of Hydrocortisone in Treatment of Chronic Progressive Polyarthritis. R. Weismann-Netter, B. Krewer and P. Lorch. Presse méd. **63:**1153-1155 (Sept. 3) 1955 (In French) [Paris, France].

In 1954, the authors reported on their first six patients with chronic progressive polyarthritis treated by multiple intraarticular injections of hydrocortisone. These initial results were excellent, and experience with 30 additional patients has reaffirmed the value of this radical method. The injections cause no harm but usually provide immediate or slightly delayed relief to the patient, and therefore should be used liberally. They constitute the treatment of choice unaccompanied by other measures, especially in the moderately severe forms of the disease where there are irremediable deformities, but pain and disability can be influenced in such a way as to obtain recoveries that were previously unheard of. The therapy is in no way curative, but it has the advantage that a new course can be undertaken at any time with no fear of sensitization or resistance. The length of the period of sedation afforded by an injection varies from 2 to 12 months. The most valuable adjunct to the treatment is physiotherapy. The period of hospitalization is considerably reduced through the use of this method, and patients are able to resume limited occupations. Those who remain virtual invalids should be cared for in special homes.

A Comparative Study of Portal and Bilharzial Cirrhosis. H. F. Rodriguez, M. R. Garcia-Palmieri, J. V. Rivera and R. Rodriguez-Molina. Gastroenterology **29:**235-246 (Aug.) 1955 [Baltimore].

In an attempt to evaluate the significance of Schistosoma mansoni in the pathogenesis of liver cirrhosis, a clinical analysis was made of all available cases of cirrhosis at the San Patricio Veterans' Administration Hospital, San Juan, Puerto Rico, during the period from November, 1946, to April, 1954. The 112 cases of cirrhosis of the liver that were analyzed included 69 of portal cirrhosis, 22 of bilharzic cirrhosis, 11 patients with concurrent Schistosoma mansoni infestation and alcoholism, 7 cases of posthepatic cirrhosis, two of biliary cirrhosis, and one of transfusion hemosiderosis. Bilharzic cirrhosis occurred in younger patients and portal hypertension and hypersplenism were more frequent. Anemia, when present, was due to bleeding esophageal varices or hypersplenism. Liver function tests revealed a high incidence of abnormality in Bromsulphalein dye retention and alterations in plasma protein constituents. The patients with portal cirrhosis showed a higher incidence of edema and ascites, also of jaundice and of signs and symptoms attributed to endocrine disturbances. Leukocytosis was also encountered more often in portal cirrhosis, suggesting a more extensive hepatic necrosis. Anemia was of three types in these patients: due to loss of blood, associated with hypersplenism, and of the macrocytic type. Bleeding esophageal varices and hepatic insufficiency were the immediate causes of death in the cases of portal cirrhosis, whereas bleeding varices and postoperative complications following an esophagogastrostomy were the main causes of death in bilharzic cirrhosis. Patients with Schistosoma mansoni infection may present a clinical picture that differs in many respects from that of hepatic cirrhosis due to other causes. The exact role that the parasite plays in the production of this clinical picture remains to be elucidated.

Transient Seropositive Non-Syphilitic Pneumopathies: (Fanconi-Hegglin's Syndrome). T. Cerviá and A. Méndez de Lugo. Rev. clín. españ. **57:**352-356 (June 30) 1955 (In Spanish) [Madrid, Spain].

This syndrome consists of bronchopulmonary symptoms, roentgen signs of pulmonary inflammation with perihilar infiltration, and a positive Wassermann reaction in nonsyphilitic persons. All the symptoms and signs disappear together with the rapid reversibility of the reaction for syphilis. In the subject of this report, the disease developed in the course of an epidemic bronchopulmonary disease. The patient had no syphilis. She had a healed pulmonary tuberculosis. The clinical symptoms, roentgen signs, and positive results of the Meinicke and Sachs-Witebsky's reaction reverted to negative within a week from first consultation. The treatment during this week consisted of administration of penicillin in daily doses of 800,000 units, 0.5 gm. of streptomycin and 1 gm. of ascorbic acid. The reaction for syphilis continued negative for the three weeks the patient was under observation, after it had reverted from a week of positive results. The authors point out that, although the syndrome is benign and of short duration, the transient positive results of tests for syphilis embody a medicosocial significance. Duration of the syndrome is three to eight weeks. The false positive results of the reactions for syphilis are due to the dysproteinemia of the globulin fraction that, latent or evident, exists in certain types of pulmonary inflammation and manifests itself by transient changes of the blood serum that are favorable for the production of the false positive test for syphilis.

Use of Lipoid Organ Extracts in Cardiac Therapy. G. Ferrarini and G. Galli. Policlinico (sez. prat.) **62:**794-800 (June 13) 1955 (In Italian) [Rome, Italy].

"Cellulin Coreale," a lipoid extract of myocardium, was given, combined with cardiotonics and cardiokinetics, to 33 patients with heart disease. Electrocardiograms were taken before and after the therapy. The most favorable action of the extract was observed in patients with myocardial hypoxia in whom, in addition to a definite improvement in the subjective symptoms, regression of the signs of myocardial-coronary involvement was seen on the electrocardiograms. The most evident changes were in the ST and T tracings. Results were satisfactory in patients with atrial fibrillation who were given the extract at first combined with quinidine and digitalis and later alone. They were satisfactory also in patients with myocardial infarct to whom the extract was administered with adenosine triphosphoric acid or cocarboxylase after they had overcome the acute period. They were fair in two patients with chronic cor pulmonale and poor in patients with severe cardiovascular decompensation, especially if this was secondary to mitral defects with marked edema and decreased diuresis. Digitalis poisoning, when present, subsided gradually after the administration of this extract, and sensitivity to that drug was restored in the patients who were no longer responding to it. A late follow-up of some of these patients indicated that the good effects continue to be present for a long time after discontinuance of the therapy. The best dose was found to be one to two 1 cc. vials of the extract daily for 15 to 30 days. If necessary, a second course can be given after a treatment-free period of 20 days.

Protein-Bound Iodine—A Newer Aid in Medical Diagnosis: Report of 700 Cases. N. A. Murray. J. Florida M. A. **42:**187-191 (Sept.) 1955 [Jacksonville, Fla.].

Of 700 blood samples on which protein-bound iodine determinations were performed by the author in the course of the last three years, 400 were normal and 300 were abnormal. When the protein-bound iodine value of the serum is determined, a practical blood thyroxin level is obtained. The level of circulating thyroxin would seem to be the most accurate measurement of thyroid function currently available. The determination of serum protein-bound iodine thus offers the most valuable information of any single test in the evaluation of the thyroid status. It is not necessary for the patient to be present while the test is being performed. The protein-bound iodine values for normal persons fall in the range of 3 to 8 mcg. per 100 cc. The elimination of sulfuric acid in the final steps will increase the accuracy of the determination. The reading of the values from a precalibrated graph is not recommended. Determination of protein-bound iodine is a submicro procedure that is simplified by the elimination of some of the time constants and the use of an automatic calculator to derive the final answer. So far as is known at present, an abnormal increase in protein-bound iodine occurs only in hyperthyroidism, in early hepatitis, immediately after thyroidectomy, and in patients receiving certain types of drug therapy. An abnormal decrease in the protein-bound iodine level is noted only during hypothyroidism, hypoproteinemia (nephrosis), and during the administration of certain drugs. Thus the serum protein-bound iodine determination is extremely valuable to the clinician and the surgeon as an aid to the evaluation of patients with hyperthyroidism and hypothyroidism. The following simple protein-bound iodine tolerance test was developed by the author. A fasting protein-bound iodine specimen is drawn; then the patient is given 10 drops of strong iodine (Lugol's) solution. In a euthyroid patient there will be a 400 to 600% increase in the protein-bound iodine level, while in a patient with hyperthyroidism the increase will be less than 100% in 48 to 72 hours. This test will be applied to patients with hypothyroidism in the near future.

Tuberculosis in Persons Vaccinated by BCG Scarification. C. Gernez-Rieux, M. Gervois, C. Voisin and R. Lebeurre. Rev. tuberc. **19:**537-547 (No. 5) 1955 (In French) [Paris, France].

A follow-up study was made of 10,755 persons who had been vaccinated with BCG as school children in the period 1947-1951. For controls, 2,063 persons were drawn from the 1949 list of nonvaccinated school children. Thoracic manifestations of tuberculous primary infection occurred at the rate of 0.32 per 1,000 years of observation among the vaccinated children as compared with 6.47 among the controls. Extrathoracic tuberculosis was notably less frequent and less severe among those vaccinated. There was no case of tuberculous meningitis or osteoarticular tuberculosis among the vaccinated persons. Pleural disease and the ulcerocaseous form in the lungs were five times less frequent among them. It seems that, when tuberculosis does appear in BCG vaccinated persons, it takes benign, easily curable forms.

Antibrucellar Vaccine Therapy in Painful Syndrome of Locomotor Apparatus Due to Brucellosis. R. Verdú. Sem. méd. **62:**258-264 (Aug. 4) 1955 (In Spanish) [Buenos Aires, Argentina].

The syndrome described by the author consists of pseudorheumatic erratic pain, mainly located in the spine. The patients complain also of occipital headache, loss of memory, dizziness, and auditory, hepatic, and genital disorders. The disease may develop in patients of either sex in rural or in urban zones. Although the syndrome is caused by latent brucellosis, there are neither clinical symptoms nor roentgen signs of brucellosis. Either or both the Huddleson and Burnet's tests give positive results. The diagnosis is made from positive results of a test consisting of an intravenous injection of 1 cc. of Behring's concentrate vaccine that contains 1 billion sterilized Brucella organisms in 1 cc. of the vaccine. Positive results are manifested by aggravation of pain occurring within 3 to 48 hours after administration of the vaccine. Fever may or may not appear. The treatment consists of intravenous injections of 1 cc. each of Behring's vaccine, containing from 50 to 1,000 million sterilized Brucella organisms according to the reaction of the patient. The vaccine is given at weekly intervals for a period of from 4 to 15 weeks, according to the control of pain as reported by the patient. As soon as the patient reports a feeling of well-being immediately after having received the vaccine, the injections are given at longer intervals, first of 10 days and later at monthly intervals for several months. Transient mild pseudorheumatic pain reappears in rare cases several months after discontinuation of treatment. It is controlled by a new series of a few injections of the vaccine. Injections of 1 cc. of Behring's concentrate vaccine for the new series of treatment are given at weekly intervals. Both the test and the treatment are well tolerated and reliable. Three cases are reported.

An Evaluation of the Effect of Continuous Long-Term Anticoagulant Therapy on the Prognosis of Myocardial Infarction: A Report of 82 Cases. M. M. Suzman, H. D. Ruskin and B. Goldberg. Circulation **12:**338-352 (Sept.) 1955 [New York].

At the General Hospital in Johannesburg, South Africa, continuous anticoagulant therapy was given for periods of 3 to 76 months to 82 patients having survived an acute attack of myocardial infarction for three months or more. Another group of 88 patients whose treatment with anticoagulants was limited to the acute phase of an infarction and who were observed for similar periods, served as a control group. During the acute phase of myocardial infarction, heparin was used initially in most of the patients for periods ranging from one day to three weeks in the dosage that maintained the blood clotting time at approximately twice the normal. A day or two before discontinuing heparin therapy, oral treatment with bishydroxycoumarin (Dicumarol) or phenylindandione was started and discontinued after periods ranging from three weeks to three months in the patients of the short-term group but continued indefinitely in those comprising the long-term group. The weekly maintenance dose of bishydroxycoumarin ranged between 150 and 1,000 mg. and of phenylindandione between 125 and 700 mg., with an average in most of the patients for both drugs of 350 to 450 mg. Prothrombin control was maintained in all patients. The optimum therapeutic range was arbitrarily fixed at a prothrombin index of 40 to 60%. In 70% of the patients the prothrombin level was maintained in the therapeutic range more or less constantly. Wider fluctuations occurred in 20%, and it was necessary to vary the dosage of the anticoagulant from time to time in an attempt to maintain a more constant level. In 10% of the patients the control was considered poor, in that wide inexplicable fluctuations occurred frequently and it was difficult to maintain the prothrombin levels within the therapeutic range. The long-term and short-term groups were compared in respect to mortality, incidence of recurrent infarction, angina, and cardiac failure. Of the 82 patients in the long-term group, 6 died, a mortality rate of 7.3%, and 7 (8.5%) had recurrences of myocardial infarction, whereas, of the 88 patients in the short-term group, 29 died, i. e., a mortality rate of 33%, and 24 (27.3%) had recurrences of myocardial infarction. Separate comparisons were made of mild and severe cases, and when the former were eliminated the long-term group comprised 67 patients, 5 of whom died (a mortality rate of 7%) and 7 had recurrences of myocardial infarction, whereas in the short-term group consisting of 60 patients, 26 died (a mortality rate of 43%) and 21 had recurrences of myocardial infarction. Of the 21 patients with a history of previous infarction in the long-term group, 3 (14.3%) died, compared to 10 (66.6%) of the 15 patients with such a history in the short-term group. The incidence of angina pectoris after the presenting attack of myocardial infarction was approximately the same for both groups, whereas relief or improvement of this condition occurred in 23 (56%) of the 41 patients in the long-term group, compared with 9 (23%) of the 39 patients in the short-term group. Cardiac failure occurred with similar frequency in both groups, but 2 (11.8%) of the 19 patients with this complication in the long-term group died, compared with 8 (57.1%) of the 14 patients with this complication in the short-term group. The authors' findings suggest that patients in whom the presenting attack is mild, in addition to being the first, and who receive short-term anticoagulant therapy show a favorable outlook in respect of subsequent infarction, cardiac failure, and death, irrespective of whether or not the anticoagulant therapy is continued indefinitely. By contrast, the patients most likely to benefit from long-term anticoagulant therapy are those in whom the presenting attack is severe and who also have a history of previous myocardial infarction.

Dissecting Aneurysm of Aorta. G. Omland. Nord. med. 54: 1251-1255 (Aug. 11) 1955 (In Norwegian) [Stockholm, Sweden].

All but one of the eight cases of dissecting aneurysm of aorta with rupture were in men. The average age was 60 years. Four patients had symptoms of cardiovascular disorders, two had symptoms of hypertension, one had angina pectoris, and one, dyspnea. There was a sudden onset with violent pain in six cases; in two cases the pain increased gradually. Death, which occurred in from three hours to 11 days, was due to rupture of the dissecting aneurysm into the pericardium in seven cases and into the mediastinum in one case. The intimal rupture was located in the ascending aorta or the arch of aorta. The dissecting aneurysm continued in the direction of the heart and, in two cases, also in distal direction along the whole aorta. The etiology is not clear. There must be weakness in the arterial wall, especially in the media. In all cases more or less marked pathological changes were found in the aortic wall. Typical medionecrosis cystica was not established. The pain, most often retrosternal, is usually intense and can radiate in different directions but rarely, if ever, to the arms. As the dissecting aneurysm advances and blocks the vessels to the different organs, cardiac, pulmonary, neurological, gastrointestinal, and renal symptoms and symptoms from the extremities may arise. The most frequent mistaken diagnosis is probably cardiac infarct. Correct diagnosis before death was made in two of the cases described. In most cases the diagnosis was cardiac infarct and the usual anticoagulant treatment was applied. It is likely that anticoagulants may aggravate the prognosis in dissecting aneurysm of the aorta, and it is therefore important to bear the affection in mind in differential diagnostic considerations in cases of doubtful cardiac infarct or embolism.

Diffuse Interstitial Pulmonary Fibrosis: The Hamman-Rich Syndrome. J. C. Sloper and E. Williams. Lancet 2:533-535 (Sept. 10) 1955 [London, England].

Sloper and Williams present an additional case of the syndrome described by Hamman and Rich in 1944. The patient was a 37-year-old man, who for six years had noticed increasing shortness of breath on exertion. Twelve months before admission, he was unable to walk more than 100 yards without wanting to rest and was forced to give up work. He also complained of palpitations when breathless, with, more recently, attacks of dimness of vision and lightheadedness. An unproductive cough occurred in paroxysms, and, though at first it disappeared for periods of many weeks, it was later persistent and very distressing. Examination revealed slight cyanosis, clubbing of the fingers, increased rate of respiration, and vesicular breath sounds with scattered inspiratory crepitations. A chest radiograph showed fine mottled opacities on a reticular background in both lung fields with doubtful evidence of cardiac enlargement. An electrocardiogram showed the changes of right ventricular preponderance, and a biopsy from the lower lobe of the left lung revealed pathological changes subsequently demonstrated throughout the lungs at autopsy. He became increasingly dyspneic and cyanosed, and signs of congestive cardiac failure in the form of edema, elevation of jugular venous pressure, and hepatic enlargement appeared. There was no response to treatment. He died suddenly during the fifth week. The pathological changes in this case conformed closely with those originally enumerated by Hamman and Rich, who stressed an unusual type of inflammation, eosinophil infiltration, absence from lesions of stainable bacteria, a diffuse and progressive interstitial fibrosis, enlargement of the alveolar lining epithelial cells, necrosis of these and the bronchiolar epithelium, edema and fibrin deposition in the alveolar walls, and the deposition of a hyaline membrane (elsewhere referred to as fibrinous) lining the alveoli. An analysis of the original four cases also reveals that emphysema and alveolar destruction were conspicuous. Now that a number of cases have been reported, it is possible to qualify these criteria. There are three essential abnormalities: (1) the unusual type of the inflammation and the absence of stainable bacteria; (2) the lining of many alveoli by cubical epithelium (i. e., so-called alveolar-cell metaplasia); and (3) diffuse interstitial fibrosis. Two additional changes were conspicuous in the patient here presented: the presence of emphysema (a feature noted in most cases of the disease) and an apparent excess of smooth muscle. This latter feature may serve to differentiate a subgroup of the Hamman-Rich syndrome.

Spontaneous Disappearance of Tuberculomata of the Lung. A. H. Campbell. M. J. Australia 2:242-245 (Aug. 13) 1955 [Sidney, Australia].

The relatively sudden disappearance of pulmonary tuberculomas is observed sufficiently frequently during the follow-up investigation of tuberculous patients to warrant the conclusion that the disappearance is an important aspect of the natural history of tuberculoma. Among some 2,000 tuberculous patients, predominantly males, attached to the Chest Clinic for outpatient observation, 8 were discovered in whom a tuberculoma had disappeared suddenly. A tuberculoma was defined as a rounded or semirounded lesion at least 1 cm. in diameter, having a defined margin and considered to be tuberculous on bacteriological or radiological grounds. As there are considerable differences of opinion concerning the treatment of tuberculomas, the author investigated their termination. The eight patients were followed subsequently for between nine months and four years. During this period of observation, seven of the patients have shown no evidence of tuberculous activity attributable to the original lesion or its evacuation. In the seven cases in which the phenomenon was harmless, there was a uniform lengthy period of quiescence of the tuberculomas prior to their disappearance. It is postulated that the lesions were evacuated after the tubercle bacilli had perished or become nonviable. The phenomenon appears to be a final phase in the natural history of tuberculomas, and occurs sufficiently frequently to warrant a critical reappraisal of the policy of resecting tuberculomas and other closed lesions.

Drug Therapy in Hypertension with Hemorrhagic Hypertensive Retinitis. C. F. Burnett Jr. and J. A. Evans. New England J. Med. **253**:395-398 (Sept. 8) 1955 [Boston].

Patients with grade 3 and 4 hypertension were subjected to drug therapy. To exclude patients in the terminal stages of the disease, the authors did not include in this report the patients treated for less than four months. Patients selected for treatment with the potent drugs were first treated with Rauwolfia serpentina (Raudixin), in doses of from 50 to 100 mg. three times daily, or with reserpine (Serpasil), in doses of from 0.1 to 0.25 mg. three times daily, for periods of from three to six weeks at home. After this period of priming with Rauwolfia serpentina, the patients were hospitalized and one of the autonomic blocking agents was added. Earlier the authors used hexamethonium by injection or oral administration, but, since the advent of pentolinium (Ansolysen), they have largely abandoned hexamethonium because of the more prolonged and predictable effect of pentolinium. By priming the patients with Rauwolfia serpentina, it was possible to use smaller doses of the blocking agents with fewer side-reactions and smoother blood pressure curves. None of the 78 patients with severe grade 3 or 4 hypertension showed adequate response of the blood pressure in this priming period. Since pentolinium with its more predictable intestinal absorption became available, it has been possible to control the pressure more adequately without the danger of serious hypotensive reactions. This therapy is begun with 10 mg. four times daily before meals and at bedtime, and then the dosage is increased or decreased. The patients are taught to take their own blood pressures and to plot them on graph paper, the graph revealing the trend of the blood pressure. Usually the patient can be discharged in 12 to 14 days. Of 56 patients with grade 3 hypertension who were treated from 4 to 31 months, 53 experienced a significant drop in blood pressure and 34 showed improvement in the fundi, with absorption of hemorrhages and exudates. Forty-two of the original 56 patients are alive. Twenty-two patients with grade 4 hypertension were treated, and 16 showed a significant drop in blood pressure. Thirteen of the 22 patients survived. The principal cause of death was uremia, with cerebrovascular accidents a close second. Myocardial infarction, congestive heart failure, and hypertensive encephalopathy accounted for the remainder. The drugs are not without danger unless the dose is carefully controlled. One can best accomplish this by beginning treatment in the hospital and by teaching patients to take and record the blood pressure at home.

Rauwolfia Serpentina Treatment of High Blood Pressure. R. J. Vakil. Acta med. scandinav. **152**:107-114 (No. 2) 1955 (In English) [Stockholm, Sweden].

Of 100 patients with essential benign hypertension, 50 (group 1) were treated with the powdered root of Rauwolfia serpentina in tablet form, 25 (group 2) with reserpine, 13 (group 3) with the powdered root of Rauwolfia serpentina and veratrum viride, and 12 (group 4) with the powdered root of Rauwolfia serpentina and hexamethonium. The dose schedules observed were as follows: in group 1, one tablet of the powdered root (equivalent to 4 mg. of total alkaloids) three times daily; in group 2, one tablet containing 0.5 mg. of reserpine twice daily; in group 3, one tablet of the powdered root three times daily and 10 mg. of alkavervir (Veriloid) daily; in group 4, one tablet of the powdered root three times daily with 250 mg. of hexamethonium chloride given orally. Each patient was given first a four weeks course, then treatment was discontinued for two to four weeks (withdrawal phase) and was reinstituted and maintained for two to six months (second course). After one week of treatment the average drop in systolic blood pressure was 9 mm. in group 1, 11 mm. in group 2, 16 mm. in group 3, and 22 mm. in group 4; corresponding falls in diastolic blood pressure were 4 mm., 4 mm., 8 mm., and 13 mm. respectively. Besides lowering of blood pressure, subjective improvement was noted in 85 to 90% of the patients in group 1 and 2, in 61% of the patients in group 3, and in 67% of the patients in group 4. The results obtained with the powdered root and with reserpine were similar concerning hypotensive response and persistence and consistency of action and side-effects. With the addition of veratrum viride and hexamethonium to Rauwolfia serpentina, the hypotensive response was prompter, more intense, and less sustained; subjective improvement was less noticeable; and unpleasant reactions were more frequent. Results obtained in the author's patients suggest that Rauwolfia serpentina is a useful but mild hypotensive agent, capable of lowering both systolic and diastolic blood pressure, free of serious side-effects, easy to administer, and applicable to most patients with hypertension. It, therefore, deserves a definite place in the treatment of hypertension. While most patients with mild or moderate degrees of hypertension, and particularly of labile type, are amenable to and suitable subjects for treatment with Rauwolfia serpentina alone, those with more severe forms of hypertension, particularly when associated with fixed levels of blood pressure, may obtain better results with combined treatment.

Newer Drugs in the Treatment of Hypertension: II. Use of Hexamethonium in Combination with Hydralazine. C. L. Rast and E. S. Orgain. Circulation **12**:361-369 (Sept.) 1955 [New York].

Combined treatment with hexamethonium and hydralazine for periods of from 5 to 22 months was given to 61 patients between the ages of 15 and 65 years with severe hypertensive vascular disease, including 9 patients with malignant hypertension. Fifty-one patients were hospitalized for one to six weeks, and 10 were treated on an outpatient basis. Most of the patients were treated orally; parenteral therapy was reserved principally for patients with malignant hypertension, significant evidence of arterial disease, or impairment of renal function. During combined therapy, the dose of hexamethonium ranged from 0.75 gm. to 4.75 gm. per day with an average dose of 1.8 gm. per day. The dose of hydralazine ranged from 75 mg. to 1,100 mg. per day with an average dose of 418 mg. per day. Ten months was the average duration of treatment per patient. In 46 (76%) of the 61 patients definite reduction in recumbent blood pressure (drop in mean recumbent blood pressure of 20 mm. Hg or greater) was achieved and maintained throughout the treatment, and approximately 40% of the patients treated in the late follow-up period showed good control of recumbent blood pressure (average recumbent pressure 160/110 mm. Hg or lower). No tendency for initial blood pressure reduction or control to be lost was observed. When hydralazine was added to hexamethonium in 31 patients who had been treated with hexamethonium alone for periods of from 5 to 26 months (average 10 months), further reduction in mean blood pressure and more satisfactory control of recumbent blood pressure were achieved in most patients. The late addition of hydralazine to hexamethonium produced equally good eventual blood pressure reduction and control as did the initial combination of the two drugs; in the latter instance, however, better results in the course of combined treatment were achieved earlier. Improvement in retinopathy and in the electrocardiogram occurred in one-fifth of all patients in the course of combined treatment, while little appreciable effect on renal function or heart size was noted. Vascular complications incident to the hypertensive process were not prevented by the combined therapy. Seven patients (11%) died, but only one death was attributed to the drugs. Six nonfatal complications, such as coronary insufficiency, myocardial infarction, congestive heart failure, and cerebral thrombosis, also appeared in the course of the treatment. Late systemic reactions to hydralazine were observed in seven patients (11%); in one patient the illness simulated disseminated lupus erythematosus and necessitated administration of corticotropin and cortisone. Combined treatment with hexamethonium and hydralazine together with rigid dietary restriction of sodium constitutes at present an effective form of treatment for malignant hypertension and severe essential hypertension when renal function is good. The hazard of late systemic reactions to hydralazine [*J. A. M. A.* **157**:894 (March 12) 1955] limits the usefulness of this drug in the long-term therapy of hypertension.

Prevention of First-Attack Rheumatic Fever. J. P. Hubbard. Ann. Int. Med. **43**:504-510 (Sept.) 1955 [Lancaster, Pa.].

Efforts are being made to prevent rheumatic fever and bacterial endocarditis through control of streptococcic infections. The campaign is twofold: to prevent first-attack rheumatic fever in the general population and to prevent recurrent episodes in individuals who have already had a first attack. Prophylactic measures directed toward the second of these objectives have now become well established, but the prevention of first-attack rheumatic fever in the general population is a newer concept. The American Heart Association Committee on Prevention of Rheumatic Fever and Subacute Bacterial Endocarditis states that 3% of untreated streptococcic infections in the general population are followed by rheumatic fever. It is suggested that adequate and early penicillin treatment will eliminate streptococci from the throat and will prevent most attacks of rheumatic fever; therefore, when streptococcic infections occur, penicillin treatment should be started immediately and effective blood levels maintained for at least 10 days. Community programs intended to prevent first-attack rheumatic fever through control of streptococcic infections among school children have been started. The essential feature of these programs is the culturing of the throats of children suspected of having streptococcic infections and the treating of those whose throat cultures have been found to be positive for Streptococcus. The author reviews some of these programs, particularly that of Youngstown, Ohio, and discusses some of the questions raised by such programs. He concludes that, for the prevention and control of rheumatic fever, all respiratory infections should be given serious attention, particularly among children of school age, since this is the period when the incidence of first attacks of rheumatic fever is highest. For the present, until further experience has accumulated, it seems best to reserve judgment on the efficacy and practicality of programs involving mass culturing of the throats of school children. But in private practice, in the hands of a skillful physician, streptococcic infections can often be recognized clinically on the basis of characteristic symptoms and signs. For such patients, penicillin therapy may be started without waiting for bacteriological confirmation. The less impressive respiratory infections, which may also be due to the hemolytic streptococci and which, if untreated, may also lead to rheumatic fever, are a more difficult problem. In such cases bacteriological examination is of greatest value in order that penicillin therapy may be started promptly in those cases that are of streptococcic origin, while, at the same time, unnecessary medication may be avoided for those patients who do not show evidence of streptococcic infection.

Current Status of the Control of Influenza. T. Francis Jr. Ann. Int. Med. *43*:534-538 (Sept.) 1955 [Lancaster, Pa.].

The fact that influenza was not a simple disease immunologically was demonstrated by the studies of 1937-1938, which disclosed the variation in strains of the virus that had first been identified in 1933-1934 and was subsequently called Type A. In 1940, Type B virus was identified; in 1950, a virus recovered by Taylor a year earlier was shown to be of epidemic character and was called Type C influenza virus. More recently a virus isolated in Japan in 1952 has been shown on serologic evidence to be prevalent in this country, and it may be influenza D. These represent major, distinct immunologic types without evidence of cross immunity. But the differences between strains of Type A and Type B also may be sufficiently sharp that cross immunity is not obtained. Illustration of this fact occurred in 1947 when the strains called A-prime appeared. Immunity to the strains identified earlier did not protect against these mutants, although the latter could be readily shown to contain antigens also present in the earlier strains. The fact that changes in composition of virus strains can be steadily expected has led to the suggestion that vaccination is not a practicable method of prevention. The counter proposal is that the strains of virus belonging to Type A, for example, possess a large number of antigenic components, varying primarily in quantity or in different degrees of prominence among the antigens. On this basis, strains of virus containing significant quantities of the requisite components may be selected so as to provide adequate amounts of all the constituent antigens and thus furnish all the antigens of which that type of virus is composed. Recent studies even indicate that strains may be manipulated experimentally to alter the antigenic dominants, suggesting, thereby, that the necessary components for a complete vaccine can be arranged. The results of studies in vaccination with inactive influenza virus vaccine demonstrate its high effectiveness. Reactions are few, but the vaccine should not be given to persons naturally sensitive to eggs or chickens. The wider use of the vaccine seems desirable, and it may sharply reduce the risk of influenza and of other respiratory disorders that may accompany or follow it.

Defective Serum Gamma Globulin Formation. T. H. Brem and M. E. Morton. Ann. Int. Med. *43*:465-479 (Sept.) *1955* [Lancaster, Pa.].

Agammaglobulinemia has been seen most frequently in young boys but has also been observed occasionally in adults. The characteristic of this anomaly is the inability to elaborate gamma globulin, including antibodies, and the consequent marked susceptibility to infections, although all other serum protein fractions are normal. The authors cite histories of seven patients, all males, in whom gamma globulin was not demonstrable electrophoretically. Six of them were adults when the anomaly was discovered, although in two of them the manifestations began during childhood. The seventh is a boy, now 12 years old. The clinical manifestations of the anomaly vary considerably in this series, and the cases fall roughly into three categories. In three of the patients, lymphadenopathy and splenomegaly were prominent features, and the diagnosis of giant follicular lymphoma was either made or entertained on lymph node biopsy. One of them died, but no evidence of lymphoma was found on postmortem examination. The other two show no evidence of progressive lymphomatous disease. Both of these have advanced liver disease as a result of chronic hepatitis. Two patients, although devoid of serum gamma globulin on electrophoretic examination, possessed isohemagglutinins, and were not unusually susceptible to infections. No underlying or concomitant organic disease was detected. These two cases may have a milder degree of the same fundamental defect. The other two patients were brothers, both of whom had long histories of respiratory infections. Chronic lymphocytic leukemia developed late in life, and subsequent electrophoretic examination of their serum proteins revealed no gamma globulin. This is very rare in leukemia and is probably coincidental rather than a result. The pathogenesis of agammaglobulinemia is obscure, but it has been suggested that there are two mechanisms, the one operating in children being hereditary and the other creating the defect in adults being acquired. The occurrence of the anomaly in siblings, reported here for the first time, lends support to the hypothesis that it is genetically determined even when appearing in adults. The demonstration of absence of isohemagglutinins and an unexpectedly slow erythrocyte sedimentation rate are helpful tests when the defect is suspected. Although the defect appears to be permanent, its effects may be ameliorated by the administration of gamma globulin and the use of antibiotics.

Gamma Globulin-Deficiency Disease. G. Heuchel and D. Jorke. Medizinische, no. 35, pp. 1181-1186 (Aug. 27) 1955 (In German) [Stuttgart, Germany].

Three typical cases of agammaglobulinemia are described in a 23-year-old man and in two women, aged 25 and 32 years respectively. Serum protein determinations by means of electrophoresis revealed extensive reduction or complete absence of the gamma globulin fraction. The patients presented a pronounced tendency to recurrent infections. These two diagnostically decisive characteristics emphasize the condition as a disease entity for which the term gamma-globulin-deficiency disease is suggested. Phases of hypogammaglobulinemia alternated with those of complete agammaglobulinemia in the male patient, who had 16 attacks of pneumonia in the course of four years. The two women also had frequent recurrences of pneumonia. The disease was considered congenital in all three patients, since history of repeated infections could be traced back to infancy; in the man it was considered hereditary, since the patient's younger brother also had hypogammaglobulinemia and a tendency to infections. The total serum protein values varied from 5.30 to 7.72%. The erythrocyte sedimentation rate was first increased in the course of pneumonia and was rapidly restored to normal when the pneumonia subsided. The various other serum colloid reactions yielded normal results. The alpha and beta globulin fractions were only slightly increased. Antibiotic therapy was followed by prompt clinical response, but resistance to penicillin, which developed in one of the female patients as a result of repeated therapeutic courses with this drug, made the use of the broad spectrum antibiotics necessary. Although continued treatment with gamma globulin has the disadvantage of its high price, this type of therapy was instituted recently in two of the authors' patients. It is still too early to evaluate the results. The general condition of the patients was improved by repeated transfusions of fresh blood at short intervals, but the gamma globulin fraction remained absent in the patients' serums.

SURGERY

Management of Massive Hemoptysis, Not Due to Pulmonary Tuberculosis or Neoplasm. J. L. Ehrenhaft and R. E. Taber. J. Thoracic Surg. **30**:275-287 (Sept.) 1955 [St. Louis].

Of 12 patients between the ages of 38 and 69 years with massive hemoptysis admitted to the surgical service of the State University of Iowa Hospitals during the last five years, bronchiectasis of mild degree was the cause of the massive bleeding in 2, broncholithiasis or calcified peribronchial lymph nodes in 6, and no specific cause for the massive bleeding could be found in 4. None of these patients had a malignant or tuberculous disease. The authors believe that massive hemoptysis constitutes an indication for thoracotomy as soon as localization of the bleeding site has been established. Preoperative diagnostic procedures for localization include chest roentgenograms, bronchography with the aid of instillation of iodized oil (Lipiodol) during quiescent periods, and bronchoscopy carried out during the active bleeding. The visualization of calcific peribronchial nodes in the chest roentgenogram appeared to be very significant. Although the source of bleeding may not be visualized directly by bronchoscopy, it may be possible to determine the lobe or occasionally the segmental bronchus from which the blood is coming. Removal by suction of endobronchial clots is essential. The preoperative bronchoscopic indication of the site of bleeding will give additional assurance to the surgeon and will help in the decision as to the extent of resection to be carried out. It will prevent unnecessary sacrifice of pulmonary tissue since operative findings in themselves are often misleading. In the authors' patients, broncholithiasis or calcific peribronchial lymph nodes were found to be one of the more frequent causes of massive pulmonary bleeding. Of the 12 patients, 2 had left upper lobectomy, 2 left lower lobectomy, 1 right lower lobectomy, 2 right upper lobectomy, 2 lingulectomy, 2 left pneumonectomy, and 1 enucleation of a calcific peribronchial node embedded within the membranous portion of the left mainstem bronchus, without pulmonary resection. There was no significant morbidity and no mortality in the 12 patients. Recent communications from each of them indicated that there have been no further bleeding episodes.

Spontaneous Rupture of the Esophagus, with Presentation of Four New Cases. G. W. B. Starkey. J. Thoracic Surg. **30**:300-315 (Sept.) 1955 [St. Louis].

The occurrence of so-called spontaneous rupture of the esophagus is reported in three men and one woman of the ages between 45 and 75 years. Three of the four patients had esophageal rupture associated with severe vomiting, the fourth with yawning and stretching. It would appear that a sudden increase in intra-abdominal and therefore intragastric pressure was a basic factor in three patients. Spontaneous rupture of the esophagus occurred in normal esophagi in all four patients; this observation, as well as a brief perusal of the literature, suggests that spontaneous perforation of the esophagus in patients with known esophagitis is a most unusual occurrence. In not one of the four patients was the initial diagnosis correct, although it is usually easy to make. Severe pain in the anterior and posterior chest and a shock-like picture preceded by violent vomiting or effort are suggestive of rupture of the esophagus. The presence of supraclavicular and mediastinal emphysema and fluid or fluid and air in either pleural space is almost diagnostic. A swallow of 10 to 20 cc. of iodized oil (Lipiodol) preceding the roentgenogram almost invariably shows the leak in the esophagus. The delays from the time of rupture until surgical intervention varied from 12 hours to eight days. Three patients were treated by primary closure of the esophageal tear, and two of them survived. The third patient, aged 75, died on the fifth postoperative day of a second myocardial infarct. The fourth patient, aged 69, in whom pleural drainage was instituted eight days after the rupture occurred, died three weeks later of massive hemorrhage and perforation of a duodenal ulcer. Treatment in the first 36 to 48 hours after the rupture should consist of surgical closure of the tear with interrupted fine silk sutures and adequate drainage of the mediastinum and pleural space. Massive antibiotic therapy and rapid reexpansion of the lung on the affected side are essential in avoiding late septic complications. Patients seen 36 to 48 or more hours after rupture should be treated by pleural and mediastinal drainage; in addition, a feeding jejunostomy is important for alimentation over the prolonged period of recovery.

Use of Temporary Artificial Shunt in Experimental Surgery of Descending Aorta. F. Caluzzi, E. Fava and E. Perazzo. Minerva cardioangiol. **3**:293-301 (June) 1955 (In Italian) [Turin, Italy].

Autoplastic grafts were performed on the thoracic aorta of two groups of dogs. In the first group, the aortic circulation was interrupted for from 45 to 60 minutes, the time required to suture the graft. Most of the dogs died, and at autopsy severe degenerative changes were found in the kidney, liver, and nervous tissue of the lumbar and sacral regions. Thus, unless there is a well-developed collateral circulation, it is not possible to interrupt the aortic circulation for the time necessary to perform a graft. In the second group of dogs, the authors used a method that enabled them to maintain the continuity of the blood flow through the descending aorta while they sutured the graft. A 4 cm. segment of the aorta was resected, and the autoplastic graft to be inserted was placed over a glass tube, 5 to 7 cm. in length, which was inserted into the aorta and anchored at both ends with umbilical tape. The arterial graft was sutured at both ends all the way around. The tube was then removed through a longitudinal incision made on the anterior side of the lower segment of the aorta immediately below the distal extremity of the shunt. Ten of the 15 dogs survived the operation. Histological studies made on some of them 10 days after the intervention did not reveal alterations in the renal and hepatic parenchyma and the nervous tissue of the lumbar and sacral regions. The authors' technique is easy to perform and promises to give good results, especially in the treatment of coarctation of the aorta.

Morphological and Functional Study on Experimental Liver Regeneration After Partial and Repeated Hepatectomies with Regard to the Regenerative Process in Hepatic Injury and to the Possibilities for Exeresis of the Organ. M. Mancuso and G. Del Grande. Policlinico (sez. chir.) **62**:161-188 (June) 1955 (In Italian) [Rome, Italy].

The regenerative capacity of the liver was studied in two groups of dogs. In the first group of five, 65 to 70% of the liver parenchyma was removed in one stage by resecting the middle and the right lobes after the pedicles had been isolated and ligated and the gallbladder had been removed. Four of the dogs died. In the second group of 15 dogs, the operation was performed in two stages with removal of the left lobe and, 15 days later, the right lobe; the left lobe with the right lower lobe and, 15 days later, the residual right lobe; or the left lobe with one of the secondary middle lobes and, 15 days later, the right lobe. At the time of the second operation, the liver was already markedly hypertrophied. About two months later the dogs were killed, and the liver was found to have reached and sometimes surpassed the initial weight. This finding indicates that removal of 50% of the liver is well tolerated. The portal pressure was slightly increased in the immediate postoperative period (20 to 30 mm. of water), but this increase was only temporary because at the time of the second operation, or when the dogs were about to be killed, it was only 10 to 15 mm. of water greater than the initial value. The results of liver function tests were negative. The total serum proteins were decreased soon after the operation but in time they returned to normal. The same was true of the albumin-globulin ratio. From the morphological standpoint, the liver assumed the aspect of the human liver because of the marked increase in the volume of the residual lobes. Angiography revealed a normal vascular structure. The architecture of the lobules was normal after regeneration had occurred. Congestion of the sinusoids was marked, especially after the second hepatectomy. This study confirmed the fact that the regenerative processes are located at the periphery of the lobules. It also seemed to support the hypothesis that the biliary ducts contribute greatly to the regenerative process because the regenerative aspects of the parenchyma were observed quite often near the biliary canaliculi. The marked difference in the death rate of the animals of the first group and those of the second group suggests that hepatectomy with removal of more than 50% of the parenchyma at one time is not well tolerated.

New Bouts and Relapses After Pulmonary Resection for Tuberculosis: Study of 1,260 Operations. M. Bérard, R. Arribéhaute, J. Germain and J. Dumarest. Rev. tuberc. **19**:511-536 (No. 5) 1955 (In French) [Paris, France].

An unfavorable light is cast on the good results of surgical treatment of pulmonary tuberculosis by the fact that the disease recurs in some patients. Fortunately, this percentage is small, as shown in the present series of 1,260 resections among which there were 79 recurrences (6.5%). The number of cases in which the disease progressed on the same or opposite side in spite of operation was small. This, together with the fact that old lesions regressed totally or partially, speaks well for the effect of exeresis on the remaining parenchyma. The mechanism of this effect is twofold: suppression of bronchial dissemination and overloading of venous blood, which is unfavorable to the development of tubercle bacilli. It remains true that bed rest and antibiotic therapy, whether associated or not with pneumoperitoneum, materially reduce the number of postoperative progressive bouts of disease.

Pheochromocytoma as a Massive Abdominal Tumor. B. P. Colcock and J. E. Hull. J. Indiana M. A. **48**:955-957 (Sept.) 1955 [Indianapolis].

An instance of an enormous mass that filled the entire abdominal cavity is described in a 50-year-old man. The mass had a cystic consistency to palpation and was smooth and nontender. The patient did not present the clinical picture of hypertension or hypermetabolism; his only symptoms were those secondary to the enormous size of the tumor that extended to within a few centimeters of the pubis inferiorly, to the costal margins superiorly, and more to the left than to the right. A tentative diagnosis was made of a cyst arising from the left lobe of the liver or pancreas. Laparotomy was performed and a cyst was found that filled the entire abdomen. Approximately 4,000 to 5,000 cc. of a brownish-red mucinous fluid was aspirated from the center of the cyst cavity. After the division of many large vessels, the base of the cyst was isolated and was found to be intimately associated with the left renal pedicle. It was necessary to ligate one large branch of the left renal vein, but a smaller branch of the vein and the renal artery were preserved. There was no change in color of the left kidney and it was not removed. The tumor mass was removed intact; it weighed 3,600 gm. (8 lb.). During the final phase of the dissection, an unexplained tachycardia occurred. The blood pressure, which throughout the early part of the procedure had been 150 mm. Hg systolic and 80 mm. Hg diastolic, rose to 210 mm. Hg systolic and 140 mm. Hg diastolic. Soon after the removal of the cyst, the blood pressure returned to normal. The postoperative course was uneventful. The histopathological diagnosis was pheochromocytoma with foci of ganglioneuroma. No evidence of malignant degeneration was found. At one pole of the tumor there was a flattened yellow organ that microscopically proved to be the adrenal gland. Pheochromocytoma may present as a massive abdominal tumor with no associated hypertension or history to suggest this diagnosis. It should be suspected if at operation the tumor appears to arise from the region of the left renal pedicle and particularly if manipulation of the tumor is associated with a hypertensive episode. The tumor removed in the authors' case is believed to be one of the largest pheochromocytomas recorded.

Results of Splanchnicectomy on Patients with Hemorrhagic Hypertensive Retinitis. I Huntington and J. A. Evans. New England J. Med. **253**:398-403 (Sept. 8) 1955 [Boston].

The survival rate up to 10.5 years was determined in 206 patients who underwent sympathectomy and splanchnicectomy, all of whom had hemorrhages in the fundus oculi (grades 3 and 4 hypertension). Although the first patient was operated on 19 years ago and the longest survival is 14.5 years, statistically reliable figures exist for only 10.5 years. Patients with hemorrhagic fundi were selected for study, because they most truly demonstrate the value of the operation. The survival rate after operation in patients with grade 3 and 4 hypertension was compared with the expected survival rate for medically treated patients before the advent of the new hypotensive drugs. In the patients with grade 3 disease, the cumulative survival rate was 46% in 10.5 years, compared with an expected survival rate of 0% according to Keith, Wagener, and Barker. In the patients with grade 4 disease, the relative survival rate was 39.9% in 6.5 years, compared with an expected rate of 5.6%. At 10.5 years, the survival rate was 33.4%. The operative mortality was 2% in the patients with grade 3 and 6% in those with grade 4 hypertension. Seventy-four per cent of the survivors among the former and 75% of those among the latter felt well. Blood pressure was reduced to a satisfactory level in 67% of survivors with grade 3 and 81% of those with grade 4 disease. Cardiac status in patients with enlarged hearts or abnormal electrocardiograms was improved in approximately half the cases of grade 3 and about a third of those of grade 4 hypertension. Hemorrhages in the fundi disappeared in 84% of patients with grade 3 disease, and papilledema and hemorrhages disappeared in 100% of those with grade 4 hypertension Ability of the kidneys to concentrate urine to a specific gravity of at least 1.020 is apparently the best prognostic test for a good result in these two groups. In spite of the advent of more efficacious hypotensive drugs than have hitherto been available, splanchnicectomy is a valuable resort in hypertensive patients with hemorrhages in the fundus oculi.

Acute Gastrointestinal Ulcers After Operations. H. J. de Ruiter. Nederl. tijdschr. geneesk. **99**:2186-2189 (July 23) 1955 (In Dutch) [Haarlem, Netherlands].

The four patients in whom ulcers developed after operations ranged in age from 58 to 78 years. In three of the patients the peptic ulcer was confirmed at autopsy or gastric resection. The fourth patient recovered, but the symptoms of this woman, who had undergone a cholecystectomy, were so typical that the development of an acute peptic ulcer could not be doubted. The other three patients, who died within a month after their operation, had undergone surgery on the urinary bladder (for calculus), on the biliary passages, and on the prostate respectively. The history of a fifth patient, who was operated on for a large inguinal hernia, demonstrated that an existing peptic ulcer may be activated as the result of surgical treatment. It is suggested that these acute ulcers are simply the result of the exposure of the body to stress during and after the operation. Stress stimulates the body's secretion of acid and pepsin by way of a humoral mechanism involving the pituitary-adrenal axis. The administration of corticotropin or cortisone can have the same effect.

Treatment of Carcinoma of the Thyroid with Radioactive Iodine: (Contribution to Development of Iodine-Thyroid-Problem in Surgery). E. Ruckensteiner. Beitr. klin. Chir. **190**:134-145 (No. 2) 1955 (In German) [Munich, Germany].

In the course of 20 months, 14 patients with malignant goiters were examined at the surgical clinic of the University of Innsbruck, Austria, concerning their suitability for treatment with radioactive iodine (I^{131}). Of 10 patients who were excluded from this type of treatment because of the inability of their tumors to take up I^{131}, 5 had undifferentiated carcinoma of the thyroid, 2 sarcoma of the thyroid, one Langhans' goiter, one hemangiopericytoma, and in one the diagnosis could not be established microscopically. This last patient with a giant tumor that had perforated through the skin was treated by roentgen irradiation alone, while the nine other patients underwent surgical treatment and roentgen irradiation. Of the remaining four patients who were treated with radioactive iodine, the uptake test was negative in two. These two patients, who were given a therapeutic dose of 60 mc. of I^{131} each, despite the negative uptake test, were therapeutic failures. One of these two patients, a 38-year-old woman, was subjected to thyroidectomy three times in the course of 12 years; at the last operation an adenocarcinoma of the thyroid with metastases to the lungs was found, and the patient died three months after the ineffective administration of I^{131}. The other patient, a 63-year-old woman, had a goiter for 20 years that suddenly started to grow rapidly. Roentgen irradiation as well as administration of I^{131} failed; surgical intervention, which was carried out to prevent death from asphyxia, revealed a sarcoma, and the patient died within a few days after the operation. Treatment with radioactive iodine was effective in the remaining two patients. The first of the two, a 43-year-old woman, underwent thyroidectomy four times in the course of 10 years. An adenocarcinoma was detected at the last operation, and three months later the patient again had dysphagia, dyspnea, and cyanosis. Pulmonary metastases were revealed by roentgenologic examination. An uptake test dose of 100 mc. of I^{131} was given, 25% of which accumulated in the neck and the lower area of the thorax. The patient then was given two doses of 50 mc. each on two successive days. Dyspnea subsided within 14 days; roentgen examination six months later showed considerable regression of the pulmonary metastases. The circumference of the neck was reduced by 3 cm., and the patient no longer was cyanotic; she remained free from complaints for 15 months after the operation. The second patient, a 40-year-old woman, underwent thyroidectomy for nodular goiter twice in the course of 22 years. Restlessness, insomnia, loss of weight, pain in the region of the heart, and severe dyspnea were associated with the recurrence of the goiter in the left side of the neck. Postoperative uptake studies showed accumulation of I^{131} in the left side of the neck, and the patient was given 120 mc. of I^{131} 14 days after the operation. One year after the operation she was entirely well, had gained 11 lb. (5 kg.), the white blood cell count showed 5,500 leukocytes and the basic metabolic rate was –10%. The author agrees with other workers that the treatment with radioactive iodine is not a substitute for surgical and roentgen therapeutic measures in the treatment of malignant disease of the thyroid, but it may occasionally be a valuable adjunct to these methods. Provided that there is sufficient iodine affinity, postoperative treatment with radioactive iodine is indicated when healthy thyroid tissue also has been removed surgically. Preoperative uptake studies are advocated. The therapeutic dose of radioactive iodine then represents a special type of postirradiation. Radioactive iodine does not produce a cure, but palliative success may be impressive in 10% of the cases of malignant goiter, including inoperable ones or those treated after surgical intervention.

NEUROLOGY & PSYCHIATRY

Phenylpyruvic Oligophrenia: New Chemicopathological Findings. V. Ferrari, F. Campagnari and A. Guida. Minerva med. **46**:119-127 (July 11) 1955 (In Italian) [Turin, Italy].

The authors report the results of biochemical studies made on two women, 27 and 36 years old, both mentally retarded, with phenylpyruvic oligophrenia. The condition, which is characterized by encephalopathy and an altered phenylalanine metabolism, was moderate in one patient and severe in the other. Study of the amino acids in the peripheral blood revealed an excess of phenylalanine; this became even more marked after the ingestion of proteins. The concentration of the other amino acids was also greater than normal. An excess of phenylalanine and of other amino acids was present also in the urine and the spinal fluid; here too the abnormal values increased greatly after the ingestion of proteins. The findings in the urine revealed not only an abnormal excretion of the acids linked to phenylalanine but also an excess of true phenolic compounds, which were present in amounts that were at least two times greater than the normal values. The urinary excretion of indole derivatives was also altered; it was increased for most of them (indoleacetic, indolelactic, and other undetermined acids) and decreased for 5-hydroxyindoleacetic acid. These findings suggest that in phenylpyruvic oligophrenia there is not only the specific alteration in the metabolism of phenylalanine and tryptophane but also a more general disturbance in the metabolism of the amino acids. The results of the liver function tests were normal.

Psychiatric Complications of Mitral Surgery: Report of Death After Electroshock Therapy. E. L. Bliss, W. R. Rumel and C. H. Hardin Branch. A. M. A. Arch. Neurol. & Psychiat. **74**:249-252 (Sept.) 1955 [Chicago].

Two patients who underwent surgical treatment of mitral valvular disease had schizophrenic reactions postoperatively. They were treated with electroconvulsion. The first patient responded dramatically and rapidly recovered. The second developed a respiratory arrest after the third treatment and died. Thereafter the records of 37 patients who had mitral surgical operations were reviewed; these two patients were among that number. Besides the two full-blown reactions, one of which appeared on a background of previous schizophrenia, short-lived schizophrenic reactions after surgery appeared in two other patients. In one delusions were prominent, while the other reported auditory hallucinations in the absence of confusion or disorientation. One patient had a clearly defined reaction characteristic of an organic confusional state; he was disoriented and confused for three days. Another had a similar episode, but pertinent information on the record was insufficient. Six patients, though not psychotic, were sufficiently anxious and depressed to be mentioned by physicians and nurses. There is reason to ask whether mitral operation may be a greater psychological threat than other major surgical procedures and to question whether chronic rheumatic patients may be particularly vulnerable under these circumstances.

Jaundice Occurring During the Administration of Chlorpromazine. C. H. Stacey, D. W. Huestis, J. G. Howlett and M. M. Hoffman. Canad. M. A. J. **73**:386-392 (Sept. 1) 1955 [Toronto, Canada].

Jaundice developed in 8 of 170 mental patients who were given chlorpromazine by mouth in a dosage varying from 75 to 900 mg. a day. The jaundice was not of the usual hepatocellular type but appeared to be due to obstruction of the intrahepatic biliary tract. Clinically the onset was that of an acute gastroenteritis that persisted for several days. Painless jaundice developed from 16 to 21 days after starting therapy. Hepatomegaly and pruritus were common findings. The biochemical changes included hyperbilirubinemia, hyperphosphatasemia, hypercholesteremia, and negative serofloculation reactions. Liver biopsy in one case revealed histological features of a progressive intralobular biliary stasis, with a nonsuppurative cholangiolitis. There was no significant change in the parenchymal cells. The general principles of treatment of hepatic disease were followed in the majority of patients. Complete bed rest was difficult to obtain because of the associated psychiatric symptoms and mild nature of the hepatitis. The diet was high in calories, protein, and carbohydrate, and low in fat. It was supplemented by vitamin B complex and vitamin C; vitamin K was added when indicated. Pruritus was controlled in most of the patients with calamine lotion. In those patients who were extremely agitated, the lack of bed rest did not seem to affect the course of the disease. Except for one death resulting as a complication of liver biopsy, all the patients eventually recovered. In a group of 100 patients treated with chlorpromazine, the alkaline phosphatase level was determined serially and administration of the drug discontinued when the concentration exceeded normal. Jaundice appeared in only one of these 100 patients. Apparently, if chlorpromazine therapy is discontinued when the alkaline phosphatase level is first found to be elevated, further disturbance in hepatic function can be avoided.

Treatment of Herpes Zoster with Topical Application of Hydrocortisone. F. A. Marshall. J. M. Soc. New Jersey 52:474-475 (Sept.) 1955 [Trenton, N. J.].

In three patients with herpes zoster, whom Marshall observed in the period of one month, the topical application of a 1% hydrocortisone ointment proved highly effective. Duration of this self-limited disease was symptomatically reduced from weeks to days. The most striking benefit was the amelioration of both pain and skin lesions. Sleepless nights disappeared, and patients could continue their usual occupations within 24 to 96 hours. The ointment was applied twice daily until pain and inflammation had disappeared. No relapses occurred, and no systemic effects or complications were noted.

GYNECOLOGY & OBSTETRICS

Partial Intraligamentary Extrauterine Pregnancy Proceeding to Term, with the Aspect of Acute Abdomen. F. Best and W. Straube. München. med. Wchnsch. 97:1051-1053 (Aug. 19) 1955 (In German) [Munich, Germany].

A rare case of partial intraligamentary extrauterine pregnancy is described in a 33-year-old woman, who at term was delivered surgically of a normally developed child and who herself survived the operation. An attack of acute abdominal pain associated with sudden bleeding occurred early in the course of pregnancy, and a second attack of subacute abdominal pain occurred three months later. Roentgenologic examination revealed two months before the delivery a normally developed fetus in breech position in the right side of the abdomen. After three days of labor the patient's abdomen suddenly became hard and tense, the pelvis was empty, and the patient was screaming continuously because of most severe cramps. Laparotomy was performed, and on opening of the peritoneum no uterus was observed, but a yellowish green tissue layer that was traversed by many veins the diameters of which reached the size of fingers. Between two of these veins an incision was made causing the explosive escape of yellowish-green amniotic fluid. The arms of the infant were thrown upward from the fetal sac, and the sac became torn deep downward and above the anteriorly situated placenta. Severe hemorrhage resulted, and the mother became pulseless and pale. She was given oxygen, the infant was extracted and cried immediately. Adhesions between the fetal sac and the transverse colon, small intestine, and mesentery were divided, the rectum and the bladder freed, and supravaginal amputation of the uterus was performed. The ovaries and the Fallopian tubes were so deeply embedded that they had to be removed. The patient was given 600 cc. of fresh blood, and the abdominal wall was closed. She received large doses of antibiotics and sulfonamides, and the postoperative course was uneventful. Pathological examination of the uterus, fetal sac, and placenta revealed the remainders of an extrauterine pregnancy that had developed at least partially between the two leaves of the broad ligament. Portions of the broad ligament were found on the upper edge of the anterior surface, in the center of the anterior surface, and in the center of the posterior surface of the fetal sac. Besides a uterine hemorrhage that occurred very early in pregnancy, no signs of intra-abdominal hemorrhage were observed, but there was evidence of peritoneal irritation. The severe pains of the patient at the time of the first episode of acute abdomen were interpreted as rupture of the tubal gestation into the adjacent mesosalpinx. A viable fetus developed between the leaves of the broad ligament. The growing fetal sac acted like an inflammatory tumor in the abdominal cavity, causing repeated peritoneal irritation that reached its culmination when the fetus had proceeded to term. This concept was supported by the presence of adhesions between the fetal sac and the intestine and in the lower abdomen, which made surgical intervention technically difficult. Because of the rarity of this type of ectopic pregnancy, the diagnosis of at least partial intraligamentary extrauterine pregnancy was not made preoperatively, but in the course of the operation only; it was confirmed by the anatomicopathological and microscopic examination of the surgical specimen.

Absence of the Left Diaphragm: An Unusual Complication of Pregnancy and Labor. G. A. Williams and C. F. Whicker. Obst. & Gynec. 6:272-276 (Sept.) 1955 [New York].

A muscular diaphragm completely separating the abdomen and the thorax is found only in mammals. It is an essential organ of mammalian respiration and as such plays an important part in human reproduction. The increasing size of the abdominal cavity in the later months of pregnancy elevates the diaphragm at the expense of the thoracic cavity, producing minor physiological atelectasis. The diaphragm is also one of the most important muscles used in the voluntary expulsive efforts in the second stage of labor. Any defect, therefore, in the diaphragm may seriously complicate the course of pregnancy or parturition. Diaphragmatic hernias of the esophageal hiatus seldom cause serious trouble and are often asymptomatic, because as a rule only the cardiac portion of the stomach is affected. Hernias of any type, however, that are large enough to permit the escape of other abdominal viscera into the thoracic cavity are potentially grave complications of pregnancy. They disturb the dynamics of respiration and present the dangers of incarceration, strangulation, and perforation common to all abdominal hernias. The intra-abdominal changes of late pregnancy accentuate all of these phenomena, and the expulsive efforts of labor tend to bring them to a critical stage. Discovery of the defect during the first two trimesters should probably be followed by an attempt at repair. Evidence of obstruction, strangulation, or perforation is an indication for immediate surgical treatment at any stage of pregnancy. Arrangements should be made to terminate the pregnancy without allowing voluntary expulsive efforts on the part of the patient. Cesarean section seems to be generally favored, but there is apparently no reason why delivery from below with the aid of forceps should not be satisfactory in the absence of obstetric contraindications. This method was used in a 20-year-old patient whose first pregnancy was successfully managed at the Crawford W. Long Memorial Hospital in 1953. She was delivered of a normal living infant by midpelvic application of Kielland forceps and had a normal and uneventful puerperium. Another patient, seen in 1930, was delivered by cesarean section, but neither she nor her child survived. These two cases, with the 13 previously reported in the literature, make a total of 15 with a mortality of 8. Present methods of management of pregnancy and labor should substantially reduce the high death rate among patients with this unusual complication.

PEDIATRICS

Thrombocytopenia and Giant Hemangioma in Infants. T. A. Good, S. F. Carnazzo and R. A. Good. A. M. A. Am. J. Dis. Child. 90:260-274 (Sept.) 1955 [Chicago].

Three new cases of thrombocytopenic purpura associated with hemangioma in an 8-week-old boy, a 5-month-old girl, and a 3½-month-old boy are described. Each of the authors' three patients had a large tumor involving the skin as well as subjacent soft tissues; in one patient the tumor occurred on the face and neck, in another on the leg, and in the third on the thorax. One of the patients died five months after splenectomy, performed in an attempt to allay the thrombocytopenia. The autopsy findings and the terminal clinical course were interpreted as indicating that death was caused by overwhelming sepsis. In the two other patients, the giant hemangiomas were successfully treated. In each of the two patients, the platelet count returned promptly to normal after subsidence of the hemangiomas. In one patient roentgen irradiation to the tumor alone resulted in a cure of both thrombocytopenia and hemangioma. In the other patient, successful treatment consisted of roentgen ray therapy combined with surgical excision of the tumor. Bone-marrow biopsies were performed on each of the three patients. Specimens of the tumor were available in two patients, sections from tissue excised surgically in one of these, and autopsy specimens of the tumor in the third. The bone-marrow studies revealed an essentially normal marrow except for the evidence of response to blood loss, increased numbers of megakaryocytes, and "megakaryocytic arrest" (a shift to the left and little evidence of platelet formation) similar to that seen in essential thrombopenic purpura. Microscopic studies of the hemangiomas showed the occurrence of platelet-thromboses within the vessels of the hemangioma. It is suggested that sequestration of platelets within the tumor accounts for the thrombopenic purpura. In the authors' patients and in those reported on by other workers, it was observed that elimination or destruction of the hemangioma was associated with return of the platelet count to normal, while splenectomy was without effect on the blood dyscrasia. It is postulated, on the basis of these observations, that the thrombopenia and hemangioma are intimately related phenomena in these patients. In essential thrombocytopenia caused by immunologic injury to platelets, the sequestration occurs largely in the spleen, while in the hemangioma-thrombopenia syndrome the major site of platelet destruction is the vascular tumor. Removal of the major site of platelet sequestration might result in a resetting of this homeostatic regulator, thus relieving the megakaryocytic arrest and permitting platelet production. This concept would explain response to splenectomy in essential thrombopenia, as well as the ineffectiveness of splenectomy and the response of thrombopenia after destruction or regression of the hemangioma in the patients with the thrombopenia-hemangioma syndrome. It seems possible that the regulator inducing megakaryocytic arrest may be derived from the platelets themselves in the course of their sequestration or destruction in any part of the body and thus represent a negative feed-back mechanism.

Portal Hypertension in Infants and Children. D. Yi-Yung Hsia and S. S. Gellis. A. M. A. Am. J. Dis. Child. 90:290-298 (Sept.) 1955 [Chicago].

Of 43 infants and children with portal hypertension seen at the Children's Medical Center, Boston, during the 30-year period from 1924 to 1953, 21 had primary portal hypertension caused by extrahepatic obstructions. A history of omphalitis and sepsis in the course of early infancy, early hematemesis and splenomegaly, the absence of clinical jaundice, and frequent depression of the blood elements were prominent features of this type of portal hypertension. Of these 21 patients, 6 died and autopsies revealed anatomic lesions that could account for the hypertension in the portal system, such as obstructing valves in the lumen of either the splenic vein or the portal veins, or both, and thrombosis and fibrous obliteration of the portal vein just proximal to the entrance into the liver. The 22 other patients had portal hypertension secondary to cirrhosis of the liver. Hepatitis appeared to be the commonest cause, and in many of these patients liver function tests were usually strongly positive. Splenorenal venous shunt appears to be the treatment of choice in children with primary portal hypertension. Since the prognosis of those with secondary portal hypertension appears to be uniformly poor with supportive therapeutic measures such as diet, vitamins, transfusions, paracentesis, and omentopexy, it is felt that venous shunt should also be employed in this group of patients. Ion-exchange resins and a low-sodium diet may be helpful in lowering the mortality associated with shunt procedures.

The Epidemiological Retreat of Tuberculosis: A Ten-Year Survey of Tuberculin Reactors at a Children's Dispensary. K. E. Kassowitz. A. M. A. Am. J. Dis. Child. 90:283-285 (Sept.) 1955 [Chicago].

Of 8,506 outpatients at the Milwaukee Children's Hospital, between 3 and 16 years of age, who were considered tuberculosis suspects and were subjected to tuberculin testing according to the standard intracutaneous Mantoux method, only 304 had a positive reaction to the test, which is a surprisingly low percentage of 3.5. A breakdown for the last 10 years showed a steady, if somewhat irregular, decline per year from a maximum of 4.7% to a minimum of 3% of reactors, the average for the years from 1944 to 1948 being 3.92%, compared with 3.26% for the last five years. The credit for this gratifying epidemiological regression of tuberculosis may be attributed to some local and some nationwide factors, such as elimination of bovine tuberculosis by way of compulsory tuberculin testing of cattle, improvement in the standard of living and particularly housing, efficient case-finding procedures including routine standard and microfilm chest roentgenograms, tuberculin testing, bacteriological conversion by chemotherapy of large numbers of formerly intractable patients, and BCG vaccination of potential contacts.

Peculiarities of Course and Treatment of Adhesive Pericarditis in Children. S. L. Libov and K. F. Shiryaeva. Pediatriya, pp. 3-9, May-June, 1955 (In Russian) [Moscow, Russia].

The clinical picture of chronic pericarditis in children is fairly characteristic. The changes in venous pressure, electrocardiogram, and roentgenogram are sufficient to confirm the diagnosis, though there may be some patients who are clinically asymptomatic. Three stages of the disease may be differentiated: exudative, transitional, and adhesive (constrictive). The warning signs of cardiac insufficiency usually appear early; incorrect therapy at this time can lead to death within the first weeks of illness, as illustrated by a case report. Decrease in heart volume in exudative pericarditis, accompanied by signs of progressive circulatory insufficiency, gives positive evidence of the formation of adhesions in the pericardium and the conversion of the disease process into the third phase. The resistance of children during the acute stage is less than that of adults. The proper treatment of this pericarditis is surgical and should be performed early, to wit, in the beginning of the period of adhesion formation, in the presence of disturbances in hemodynamics, without waiting for the subsidence of inflammatory signs. When performed in the presence of adequate antibiotic preparation, this operation is completely justified and has a number of definite advantages over late surgical intervention. The best anesthesia to use is intratracheal narcosis. The preferred surgical approach is the transpleural, with wide excision on the left and resection of the fifth or sixth left rib. Resection of that part of the pericardium lying over the left ventricle is advocated, with subsequent interposition of the lung between the heart and chest wall. The beneficial effects of the operation do not appear immediately, but they are more complete and do appear earlier in children than in adults. There is no justification for not operating, even in the presence of severe secondary changes.

So-Called Genital Retardation in Children and Adolescents. J. Vague. Presse méd. 63:1139-1140 (Aug. 27) 1955 (In French) [Paris, France].

Hormone therapy has recently been used indiscriminately to treat young patients with delayed onset of puberty in whom nothing is radically wrong. Most of them are boys, often with overanxious mothers. They are of three primary types: (1) those with gynecoid obesity that makes the external genitalia appear proportionately smaller, (2) those whose weight is suitable to their height but who tend to be thin and somewhat puerile psychically as well as physically, and (3) those with undescended testes. Thorough examination of each patient is indispensable. Proper diet and passage of time will usually accomplish the desired effect. Concerning patients in the last category, it should be remembered that true ectopia, which can only be treated surgically, is rare. Much more often it is a question of an anomaly that will correct itself spontaneously when puberty establishes itself definitively. In girls in whom menstruation has not yet appeared, nothing should be done before the age of 15, and not before the age of 16 if development of the secondary sexual characteristics has taken place by the age of 15. True hypotrophy requiring hormonal stimulation of the gonads or pituitary will rarely be seen by the general practitioner. He must not be influenced by the advertising campaign waged by pharmaceutical houses or by parental anxiety, because the artificial production of puberty has adverse physiological and, especially, psychological consequences on adolescents. Suggestions for conservative therapy with sex and growth hormones are given by the author for each type of case in which it is really needed.

Long-Term Aureomycin Administration in the Prevention of Rheumatic Fever. A. B. Weinstein and C. M. Kurtz. Wisconsin M. J. 54:423-427 (Sept.) 1955 [Madison, Wis.].

Chlortetracycline (Aureomycin) in an initial dose of 10.4 mg. per kilogram of body weight was given to 28 children between the ages of 5 and 14 years who were known subjects of rheumatic fever. Duration of treatment varied from 5 to 35 months. There were no recurrences of active rheumatic fever in this group. Of the 223 throat cultures taken, 221 were negative and only 2 were positive for beta hemolytic streptococci. The incidence of side-effects was extremely low.

Immunization Against Diphtheria and Whooping-Cough: Combined v. Separate Inoculations. V. Spiller, J. M. Barnes, L. B. Holt and D. E. Cullington. Brit. M. J. 2:639-643 (Sept. 10) 1955 [London, England].

Two similar groups of infants were used in a small field trial made for the purpose of ascertaining whether the diphtheria antitoxin responses obtained after a course of combined diphtheria-pertussis prophylactic injections started before the age of 6 months were satisfactory. The trial also provided strictly comparable figures by which the relative efficiencies of three doses of fluid diphtheria toxoid combined with pertussis vaccine and two doses of PTAP (purified diphtheria toxoid precipitated by aluminum phosphate) could be compared. Healthy babies ranging in age from 2 to 5 months inclusive on the day of the first injection were allotted at random to the separate or combined method groups. Those in the separate group (79) received three injections each of 1 ml. of suspended whooping-cough vaccine, followed by two injections of 5 ml. of PTAP, all injections being given at monthly intervals. Those in the combined group (81) received three injections each of 1 ml. of combined diphtheria-pertussis prophylactic, also at monthly intervals. All injections were given subcutaneously. The authors used PTAP instead of A. P. T. (alum-precipitated toxoid) because their previous experience showed that it produced fewer and less severe reactions. Blood samples taken from the heel were obtained from each child at the age of 15 months and the serums were assayed for their diphtheria antitoxin and H. pertussis agglutination titers. Three doses of the combined prophylactic gave significantly higher antitoxin titers than those previously reported for two doses of A. P. T. Very young infants inoculated with the combined prophylactic gave higher antitoxin titers than somewhat older ones inoculated with A. P. T. Two doses of PTAP, however, gave the highest figures. The agglutination titers to H. pertussis obtained in the two groups were of the same order, although the whooping-cough vaccines used in them differed in manufacture and H. pertussis content. Present findings give no reason to suppose that a pertussis vaccine combined with fluid diphtheria toxoid is any less effective antigenetically than one given separately. No correlation was found between the responses of individuals to the diphtheria toxoid and the H. pertussis agglutinogen. Children who are still being brought into the investigation are to be followed up clinically for a minimum of two years and the results presented in a later paper.

Immunization of Babies with Diphtheria-Tetanus-Pertussis Prophylactic. M. Barr, A. T. Glenny and N. R. Butler. Brit. M. J. 2:635-639 (Sept. 10) 1955 [London, England].

Two triple prophylactics, one referred to as adsorbed and one as fluid, were used in immunization trials designed to determine whether satisfactory immunity could be established in very young babies given the first of a course of three injections of the adsorbed preparation at the age of a week and also the optimum age at which to begin immunization with the fluid preparation. Both preparations contained, per milliliter, 60 Lf of purified diphtheria toxoid, 12 Lf of purified tetanus toxoid, and 4×10^{10} H. pertussis; in one, the toxoids were adsorbed on to aluminium hydroxide and in the other no mineral carrier was used. The dose injected into the babies was in all cases 0.5 ml. The question of age at the time of the first dose is of special importance, because the immunization in most babies should be started at a time when the maternally conferred diphtheria antitoxin has fallen below the level at which it will interfere with the action of the diphtheria toxoid in the prophylactic. Most of the babies in this study were born during 1953 and 1954. They were divided into four groups, S, T, V, and Y. Those in group S received three injections of adsorbed prophylactic at the ages of 1, 6, and 14 weeks respectively. Groups T, V, and Y received injections of fluid prophylactic at the following ages: T, 6, 12, and 18 weeks; V, 12, 16, and 20 weeks; and Y, 16, 20, and 24 weeks. A reinforcing dose of the fluid preparation was given to all groups at the age of 52 weeks. Titration for the antitoxin in blood samples taken at various intervals showed that when injections of the fluid preparation were given four weeks apart, starting at the age of 12 or 16 weeks, only one baby in 330 had a diphtheria titer below that usually regarded as the Schick level when tested eight weeks after the third injection. Over 93% had titers at least 10 times this level, and over 75% had titers above 0.2 unit. Not one of the 240 babies tested at the age of 12 months was below the Schick level, and 90% had titers at least 10 times this level. Results were less satisfactory in the group receiving the first injection of the fluid preparation at the age of 6 weeks. The adsorbed triple prophylactic, started when the babies were one week old, caused severe reactions, and, although the diphtheria titers were satisfactory at the age of 6 months, they fell rapidly during the next six months. The tetanus antitoxin titers of all babies were above 0.1 unit per milliliter each time samples were taken, and in 95% of 460 tested at the age of 6 months they were at least 1 unit per milliliter. A rough correlation was found between the diphtheria and tetanus responses in all the groups.

Evaluation of the Results of Penicillin Therapy of Congenital Syphilis in Children. L. Dembińska-Widy. Pediat. polska 30:553-557 (July) 1955 (In Polish with Russian and English summaries) [Warsaw, Poland].

Five years' experience with 118 infants and children with congenital syphilis treated in the pediatric clinic of the Medical Academy in Poznan, Poland, prompted the following suggestions. In premature babies and infants less than 2 months old with severe lesions, preparatory treatment should be instituted, in order to avoid a Herxheimer reaction. This treatment should consist of acetarsone (acetylamino-hydroxyphenyl-arsonic acid), starting with half of a 0.25 gm. tablet a day and continued for two weeks. Penicillin therapy is instituted after this period. Congenital syphilis should be treated during the first year of life with two courses of penicillin therapy and one of arsenic and bismuth. No changes in the nervous system and no mental disturbance were noted by the author in the infants so treated. In the second year of life one course of penicillin therapy is advised, with three arsenic-bismuth treatments, and, in the third year, one of penicillin and four of arsenic and bismuth. If serologic resistance or serologic recurrence be encountered, as many as six courses may be used. In older children with late congenital syphilis, a too energetic treatment with penicillin or arsenic compounds may cause a Herxheimer reaction. Patients should not be discharged from observation before examination of the cerebrospinal fluid and auxiliary examinations are performed. After cessation of therapy, children should be examined periodically for three or more years.

Difficulties in Diagnosis of Thyroid Hypofunction in Children. J. Kosowicz and A. Graczykowska. Pediat. polska **30**:543-551 (July) 1955 (In Polish with Russian and English summaries) [Warsaw, Poland].

The diagnosis of thyroid gland insufficiency in children is difficult, because the first symptoms of the disease are not very characteristic and are noted late. The commonest wrong diagnoses for hypothyroidism are rickets and mental deficiency. False diagnoses of primary thyroid insufficiency are made in cases in which the insufficiency is actually secondary to disorder of the central nervous system, or hypothalamohypophysial system, and consequently, requires different therapy. In differentiating hypothyroidism from other diseases, the entire clinical picture should be taken into consideration. Radiological examination of the bones is an aid in diagnosis, since a characteristic sign of hypothyroidism is marked inhibition of the bone age (late appearance of ossification nuclei) that can be seen in the roentgenograms before inhibition of normal growth is noticed in the child. A definite increase in the serum cholesterol level suggests thyroid insufficiency and can therefore be used in the differential diagnosis from mental retardation. Finally, the therapeutic test is of value, especially in the abortive forms of hypothyroidism; improvement after thyroid replacement therapy proves the diagnosis.

UROLOGY

Malignant Lymphomatosis of the Kidneys. R. A. Wentzell and S. W. Berkheiser. J. Urol. **74**:177-185 (Aug.) 1955 [Baltimore].

In 1,047 autopsies performed between 1949 and 1954 at the Robert Packer Hospital in Sayre, Pa., there were 32 cases of histologically proved malignant lymphoma, an incidence of 3%. By reviewing the clinical records, autopsy protocols, and microscopic sections of these cases, renal involvement was found in 17 (53%). Men predominated in a ratio of 8 to 1. All patients were over 50 years of age at the time of death except for six who were between the ages of 11 and 38 years. The kidneys were involved less often in reticulum cell sarcoma (16%) and Hodgkin's granuloma (20%) than in other types of lymphoma, such as lymphosarcoma, Hodgkin's sarcoma, and multiple myeloma, and in leukemia, in which renal involvement was present in 50 to 100% of cases. Primary renal lymphomatosis has never been proved. Any patient with slowly progressive renal failure not easily explained should be suspected of having lymphomatosis involving the kidneys or ureters. Common symptoms and signs are generalized weakness, anorexia, loss of weight, and anemia. Purpura may be present due to thrombocytopenia. Localizing symptoms may direct the physician's attention to the chest or abdomen depending on whether the mediastinal or retroperitoneal lymphoid tissue is the site of the chief lesions. Venous thrombosis and edema of the lower extremities may occur; it is caused by obstruction of veins and lymphatics by retroperitoneal masses. Four of the 17 patients with renal involvement died in uremia. Autopsy revealed bilateral ureteral obstruction by retroperitoneal masses resulting in uremia in two, one of whom had lymphosarcoma and the other Hodgkin's granuloma. Another with chronic myelogenous leukemia and a moderate amount of retroperitoneal enlargement had bilateral hydronephrosis and hydroureters, moderate obstruction of the neck of the bladder caused by benign prostatic hyperplasia, and terminal bilateral pyelonephritis. The fourth patient had multiple myeloma and died of renal insufficiency; dense infiltration of intestinal tissues by plasma cells, lymphocytes, and multinuclear giant cells and obstruction of the renal tubules by protein casts resulted in glomerular and tubular degeneration and atrophy. In all types of lymphoma the patient's life was apparently prolonged and made more comfortable by irradiation or chemotherapy with nitrogen mustard and triethylene melamine.

Further Experience with Transrectal Biopsy of the Prostate. H. Grabstald. J. Urol. **74**:211-221 (Aug.) 1955 [Baltimore].

Transrectal biopsy was made in over 100 patients with suspected carcinoma of the prostate. After thorough cleansing enemas and sterilization of the intestine, preliminary sphincter dilatation was performed with the aid of low spinal or saddle block anesthesia. The Fansler operating rectal speculum was introduced; it permitted easy palpation of the prostate and through it biopsy forceps was easily admitted. A 4 by 8 in. gauze packed in the rectum above the prostate served to stretch the rectal mucosa over the desired biopsy site. A vertical stab incision was made over the suspicious area and the prostate was palpated through the proctotomy, which was easily dilated with the index finger and biopsy forceps together. With the use of sharp-edged forceps, a separate prostatic incision was not necessary. To avoid entering the urinary tract, the bladder must be emptied before surgery; an indwelling urethral catheter may occasionally serve as a midline landmark. The stab incision into the prostate should be directed laterally, toward either lateral lobe, and away from the midline of the prostatic urethra. Of 50 consecutive patients who were subjected to this procedure, a pathological diagnosis of carcinoma was made in 21, chronic prostatitis in 21, benign prostatic hyperplasia in 6, squamous metaplasia without infection in one, and calcinosis with foreign body reaction in one. Thus over 50% of clinically hard or suspicious prostates proved to be benign, while carcinoma was revealed in only 41.1%. Transrectal biopsy is especially useful for the diagnosis of inoperable prostatic carcinoma. The nature of the approach lends itself to ready access to the posterior lamella. A pathological diagnosis of potentially curable carcinoma of the prostate was made in 11 patients. Radical retropubic prostatectomy was carried out in eight and radical perineal prostatectomy in three, thus adding to the evidence that diagnosis of early carcinoma is not so rare as previously believed. Only moderate additional dissection difficulty at the time of radical surgery resulted from the previous transrectal biopsy in most of these patients. A waiting period of three to four weeks between biopsy and definitive radical surgery may be indicated. Earlier intervention before scar formation has certain advantages. There were few complications of transrectal biopsy. Hemorrhage and infection were neither common nor serious. Prostatitis was the most serious inflammatory complication. Fistulas did not occur after transrectal biopsy. Hematuria was rare and was easily controlled by catheter drainage. For most urologists not trained in perineal surgery, radical retropubic prostatectomy combined with a satisfactory preoperative biopsy technique may be the procedure of choice.

Unilateral Renal Purpura: Report of a Case with Clot Formation Simulating Tumor. J. Zellermayer and H. Passman. J. Urol. **74**:191-196 (Aug.) 1955 [Baltimore].

A case of unilateral renal purpura is described in a 25-year-old man who was admitted to the Menorah Medical Center in Kansas City, Mo., with gross hematuria of several hours' duration. He had no other urinary symptoms, no pain, no dysuria, no frequency, and no chills or fever. Excretory urography revealed an irregular filling defect in the pelvis of the right kidney. Gross hematuria persisted for nine days. A right nephrectomy was performed. The postoperative course was uneventful, the urine cleared up completely, and the patient was dismissed on the 11th postoperative day. He remained asymptomatic and well. Microscopic examination of the removed right kidney revealed striking changes in the pelvis and, to a lesser extent, in the peripelvic fat; they consisted of recent hemorrhages, heavy inflammatory infiltration with lymphocytes and eosinophils, and edema, affecting all the major and minor calices. An abundance of small blood clot fragments was observed lying free in calices and pelvis. There were inflammatory foci in the peripheral part of the wall of the ureter and periureteral tissues, essentially similar to those in the pelvis. Lymphocytes were the predominant cells and eosinophils were less abundant in the ureter. Suggestive local fibrinoid degeneration was present in the peripheral portion of the wall of the blood vessels and in the perivascular tissues. The heavy eosinophilic leukocytic infiltration in the renal pelvis and peripelvic tissue, the fibrinoid degeneration in the walls of the vessels, and the reaction in the ureter were suggestive of hypersensitivity. Nine similar cases were collected from the literature.

Pressor Gland in Urologic Hypertension. C. Jiménez Díaz and M. Morales Pleguezuelo. Rev. clín. españ. 57:342-350 (June 30) 1955 (In Spanish) [Madrid, Spain].

The authors report a histological study of the kidneys of five patients with acute hypertension. The kidneys were removed at operation in four patients with unilateral nephropathy and at necropsy of a patient with acute renal disease who died in uremia. The removal of the pathological kidney in the four patients resulted in complete suppression of hypertension. In all five cases the changes of the pathological kidneys consisted of destruction of the glomeruli, atrophy of the tubules, and an enormous hyperplasia and thickening of the walls of the small arteries and arterioles. The lumen of the vessels was almost occluded. The intima was the seat of a reaction of a metachromatic substance like that normally observed in a very small degree in the walls of the arteries for controlling the balance of the blood pressure. The authors believe that the kidney secrets and utilizes or destroys pressor substances in response to the demands of regulation of blood pressure. The pressor substance is a metachromatic substance that is produced during a reaction of hyperfunction of the arterial wall. The tubules are concerned in modifying and using the pressor substance or in destroying it, according to the demands for the regulation of the blood pressure. The lack of destructive power of the tubules upon the pressor substance is the cause of hypertension. As the pressor substance from the kidney passes unmodified into circulation, it elicits a diffuse reaction of hypersecretion of pressor substance from the arterial walls of the entire arterial system.

OPHTHALMOLOGY

Hyaluronidase in the Treatment of Exophthalmic Ophthalmoplegia. L. P. E. Laurent and J. W Scopes. Lancet 2:537-538 (Sept. 10) 1955 [London, England].

Laurent and Scopes present the history of a 53-year-old man, who was hospitalized because of thyrotoxicosis. He was treated by rest in bed, methylthiouracil, and later thyroid extract. After three weeks his symptoms had disappeared and he had gained 10 lb. (4.5 kg.), but the staring eyes persisted. The treatment with methylthiouracil and thyroid extract was continued after discharge from the hospital. He was seen as an outpatient at intervals of three weeks, and his toxic symptoms and signs remained well controlled, and the dose of methylthiouracil was reduced successively. The exophthalmos steadily increased; edema of the conjunctiva, first noticed in April, was considerable by July; and his eyes were continuously sore and watering. Radiotherapy to the orbit was tried but had to be discontinued. Slight improvement resulted from the application of cold compresses to the eyes. Then hyaluronidase, in the form of Hyalase, was injected into the conjunctiva a few minutes after 2% Decicaine drops had been instilled. During the next two weeks, six such injections were given into the conjunctiva of the worse eye, the right, the left serving as a control. Within 24 hours of the first injection, there was a distinct lessening of the edema, and with each subsequent injection the improvement increased. The left eye meanwhile was being treated with cortisone ointment and was improving, but not so rapidly as that treated with Hyalase. Later, six injections were given into the conjunctiva of the left eye, the application of cortisone ointment being discontinued. The improvement again was distinct and persistent. The next stage was the injection of Hyalase into the orbit itself. There was a clinical impression of improvement in the movements of the eyes, but no measurement of change was possible. The attention of the authors was called to an earlier report by Lebensohn in which it was suggested that hyaluronidase might be useful in thyrotropic exophthalmos.

Retrolental Fibroplasia: Relation to Oxygen Therapy. P. Brændstrup and E. W. Flensborg. Ugesk. læger 117:1015-1022 (Aug. 11) 1955 (In Danish) [Copenhagen, Denmark].

Systematic examination of 228 premature infants treated in a Copenhagen pediatric department from 1950 through 1954 revealed retrolental fibroplasia in 31 infants, of whom 6 have become blind, 2 have reduced vision, and 7 have permanent changes without functional significance; in 16 the condition was reversible. Slight irreversible changes occurred after five days' treatment with oxygen; permanent retinal degeneration reducing vision was not demonstrable till after two weeks' treatment. Since 1952, oxygen therapy for premature infants has been given only on urgent indication and then as little and for as short a time as possible. Analysis comparing the frequency of retrolental fibroplasia during the two periods with the different oxygen regimes supports the theory that the affection is induced by oxygen therapy for premature infants. Oxygen treatment of premature infants should be avoided whenever possible and employed only on the strictest indication.

Retrolental Fibroplasia in Nebraska. S. M. Truhlsen. Nebraska M. J. 40:293-295 (Aug.) 1955 [Lincoln, Neb.].

Of 41 known blind children of preschool age in the state of Nebraska, 20 (49%) are blind because of retrolental fibroplasia. In addition, five children in the School for the Blind at Nebraska City are blind because of this disease. Increasing evidence from many sources indicates that a large majority of these children are blind because too much oxygen was administered routinely during the first few days of life. In accordance with these findings, it is suggested that, after the first 48 hours, oxygen should be restricted entirely or limited to minimal amounts dictated by clinical need and that a maximum oxygen concentration of 40%, as determined by an oximeter, should be given unless special critical conditions supervene. When oxygen is given, the percentage administered should be withdrawn gradually rather than suddenly. In cases of marked visual impairment, it is suggested that the parents of the child be advised to consult the Services for the Blind for help and guidance in the period of adjustment and rehabilitation.

Isoniazid and Ocular Tuberculosis: An Evaluation of Experimental and Clinical Results. W. H. Kratka. A. M. A. Arch. Ophth. 54:330-344 (Sept.) 1955 [Chicago].

Experiments on rabbits showed that isoniazid has definite bacteriostatic, and possibly bactericidal, effects in milder tuberculous infections in the anterior chamber. The abnormal changes observed in the treated eyes were considerably less than those observed in the nontreated eyes. Definite clinical improvement followed about 21 days of therapy. After 70 days of therapy, all clinical activity had ceased and laboratory studies were negative for tubercle bacilli and showed only low-grade inflammatory activity. Isoniazid was given a therapeutic trial in 94 patients with ocular tuberculosis. The patients received an average of 300 to 400 mg. of the drug per day orally. This was divided into 100 mg. doses given at four to six hour intervals. Isoniazid ointment (200 mg. per gram) was used topically at bedtime in the anterior segment lesions. In most of the patients, no marked changes were noted in the first two to three weeks of therapy, after which improvement was fairly rapid in those patients who did respond. Patients with posterior uveitis and those with periphlebitis and hemorrhage responded best to therapy, 69% being improved. The next best response was noted in patients with anterior uveitis; 52% of these patients were improved. Treatment with isoniazid was continued in all patients for a minimum of four months despite apparent clinical cures within two months in many patients. This prolonged therapy was based on the experimental studies that showed that pathological activity could be present despite a lack of clinical activity. Apparent cures were obtained in 56 of the 94 patients. Recurrence after therapy was observed in only three cases, two of which were sarcoid in origin. Isoniazid has definite value in the treatment of ocular tuberculosis in man. The drug appears to be nontoxic and is easily administered. It is inexpensive and makes frequent office visits or hospitalization unnecessary. Treatment must continue for at least four months to obtain clinical cure.

THERAPEUTICS

Studies on Coronary Blood Flow, with Emphasis on the Treatment of Coronary Insufficiency. W. L. Jamison, L. De Vera, G. Katakis and others. J. Am. Geriatrics Soc. 3:521-526 (Aug.) 1955 [Baltimore].

Norepinephrine has recently been reported to have a beneficial effect in shock following myocardial infarction. Most clinicians regard this drug as one that elevates blood pressure and thus causes an increase in coronary flow. Data obtained from circulatory studies in mongrel dogs, however, show that it is a potent coronary vasodilator and that it produces an increase in coronary blood flow far exceeding its effect on the blood pressure. Ten of the first experiments in this series dealt with the effect of methoxamine hydrochloride (Vasoxyl) on the blood pressure and coronary blood flow. The observations covered a period of five minutes and were not accompanied by oxygen measurements. The flow decreased slightly at times, but in general the findings suggest that the effect of methoxamine on the coronary blood flow is proportional to the rise in the blood pressure. Norepinephrine, on the other hand, was found in three contrasting experiments to have a much greater effect on the coronary blood flow than on the blood pressure. A similar increase in coronary blood flow was also produced by natural epinephrine, which was used in five other experiments. Experiments in which oxygen consumption studies were made showed that the increase in coronary circulation after the administration of both norepinephrine and epinephrine was greater than that in oxygen utilization by the heart. The coronary venous oxygen content rises because the oxygen supply of the heart muscle is raised to such an extent that the heart muscle no longer needs to take the maximal amount of oxygen out of the coronary blood. This finding was in harmony with the gross observation that the coronary venous blood turned bright red after the administration of norepinephrine and epinephrine, whereas when methoxamine was given it had remained black.

Evaluation of Orally Administered Penicillin. W. P. Boyer. J. Am. Geriatrics Soc. 3:556-565 (Aug.) 1955 [Baltimore].

Doubts in regard to the reliability of orally administered penicillin rest largely on studies carried out years ago with doses that now seem ridiculously small. The early investigators were compelled by practical considerations to recommend only parenteral administration of what was then a rare and new antibiotic with a potency of only from 40 to 50 units per milligram as compared with 1,670 units per milligram today. A reappraisal of these recommendations, however, is now under way. The increased availability and greater potency of the drug, as well as the many new forms in which it is now being supplied, have started an unmistakable trend toward its oral administration. The Scandinavians, in particular, are ahead of the United States in accepting oral penicillin therapy. The penicillemia (penicillin plasma concentration) demonstrated by investigators using small oral doses (10,000, 20,000, and occasionally 50,000 units) was slight and transient, but now with doses of 100,000 units or more given orally all the author's patients have shown a penicillemia of variable duration. Penicillin has also been recovered in the urine after the administration of smaller oral doses, even when it could not be demonstrated in the plasma, proving that absorption had taken place from the gastrointestinal tract. Repeated studies have shown that the same dose of penicillin administered to the same patients under the same conditions gives rise to a reproducible penicillemia. Variations in the absorption of penicillin from the gastrointestinal tract reflect the physical and pathological differences between patients and should lead to even greater individualization of dosage schedules. Statements about penicillin therapy should always be qualified by reference to the type of penicillin used, the route of administration, and the size of the dose. Orally administered doses of some of the insoluble penicillins (procaine penicillin, benzathine, and benethamine) are capable of producing higher peak concentrations in the plasma than those produced by the same penicillins given parenterally. None of the penicillins presently available, however, has been shown to be superior to potassium or sodium penicillin G in giving a prompt and predictable penicillemia. Objections on the ground of unpalatability can be overcome by suspending the penicillin in anhydrous coconut or peanut oil. The oral administration of 1 million units of sodium or potassium penicillin produces a penicillemia comparable to that resulting from the intramuscular injection of 200,000 units of water-soluble penicillin. Penicillin given orally in reasonable dosage (200,000 units administered three or four times a day) can induce penicillin plasma concentrations greatly in excess of those produced by the intramuscular injection of 10,000 units of potassium penicillin every four hours, which have been shown to be therapeutically effective. The use of probenecid given orally in combination with penicillin results in a twofold to fourfold increase in the resulting penicillin plasma concentration, so that the maintained penicillemias are comparable to those occurring after the parenteral administration of repository penicillins. These findings show that orally administered penicillin is applicable to the therapy of most of the common penicillin-treatable infections.

The Use of Prednisone (Meticorten) in Respiratory Disease: II. Pulmonary Emphysema and Pulmonary Fibrosis. H. A. Bickerman, G. J. Beck and A. L. Barach. J. Chron. Dis. 2:247-259 (Sept.) 1955 [St. Louis].

Results of administration of prednisone to patients with bronchial asthma were reported by the authors in a previous paper (*J. A. M. A.* **158**:1396 [Aug. 13] 1955). Similar methods of administration of prednisone were used in 50 patients, 12 of whom had extensive pulmonary fibrosis complicated by varying degrees of bronchopulmonary infections; the remaining 38 patients had pulmonary emphysema, which was associated with fibrosis in 7. There were 39 male patients and 11 female patients, all between the ages of 15 and 74. The drug was given in four divided doses daily. The average daily dose of prednisone given was 50 mg. on the first day, 35 mg. for the first week, and 20 mg. (maintenance dose) for 60 days. The results obtained differed from those obtained with cortisone and corticotropin (ACTH) in the following ways. Moderate to marked improvement with relief of dyspnea and increased tolerance occurred in 43 patients (86%) treated with a daily dose of prednisone averaging one-quarter that employed with cortisone. The onset of subjective improvement was significantly more rapid than with cortisone, usually within 48 hours after treatment was instituted. A striking loss of body weight ranging between 3 and 9 lb. (1.3 and 4.1 kg.) occurred in 12 of the 50 patients in the course of the first week of therapy, including patients with cor pulmonale who had not responded favorably to cortisone. A decrease of 8 and 9 lb. (3.6 and 4.1 kg.), respectively, occurred during the first week of treatment with prednisone in two of four patients who had not previously been treated with cortisone. The possible mechanism of this weight loss at a time when appetite and food intake were increased deserves further study. With the exception of salt and water retention and the decreased incidence of moon face or fat deposition, other untoward reactions observed with cortisone were observed likewise with prednisone, especially gastrointestinal disturbances and reactivation of sinobronchial infection. As a precautionary measure, administration of prednisone with milk and the addition of aluminum hydroxide or calcium carbonate two hours after meals and on retiring is advocated. Concurrent administration of the broad spectrum antibiotics such as tetracycline is suggested, particularly in patients with bronchitis or bronchiectasis.

Practical and Theoretical Notes on the Introduction in Therapy of Prednisone (Metacortandracin). L. Villa and C. B. Ballabio. Minerva med. 46:1-4 (July 4) 1955 (In Italian) [Turin, Italy].

The authors' experience with prednisone (metacortandracin) on more than 70 patients with various conditions indicated that this new steroid is several times more potent as an anti-inflammatory agent than cortisone and that the side-effects are less marked than those occurring after cortisone or corticotropin therapy. In addition, it does not interfere negatively with the water-mineral exchange. Administration of the preparation to 14 patients with rheumatic carditis indicated that it is particularly suited for treatment of this condition. Prednisone gave good results in patients with asthma, scapulohumeral periarthritis, and gout. It had a diuretic effect on patients with nephrosis in whom diuresis reappeared on the 4th or 5th day of therapy and was completely restored by the 10th day. It benefited three patients with Addison's disease in whom the effects, after the administration of relatively low effective doses (5 to 10 mg. daily), were comparable to those of cortisone. In addition to clinical improvement, a marked fall in the 17-ketosteroid excretion was observed in one patient with the adrenogenital syndrome. In blood diseases, the activity of this steroid was four to five times greater than that of cortisone. From the metabolic standpoint, prednisone does not cause sodium retention, potassium depletion, or hypochloremic alkalemia. Its interference with the carbohydrates' metabolism is not great. Changes in the plasma proteins are like those caused by cortisone, but they can be more severe and occur more frequently if large doses of this steroid are given. A slight moon-shaped face, acne, and hirsutism were some of the side-effects. They indicate the adrenocortical-like nature of prednisone, which, therefore, should be used with caution.

Prednisone in Bronchial Asthma. U. Serafini, A. Pieri and U. Di Nardo. Minerva med. 46:22-26 (July 4) 1955 (In Italian) [Turin, Italy].

Prednisone administered to 12 patients with bronchial asthma of long standing brought about a partial or total remission of the symptoms in most. The drug was given for from 6 to 18 days in doses of 30 mg. daily for the first two days and of 10 to 15 mg. thereafter. The total dose ranged from 130 to 370 mg. The patients began to improve during the first 24 hours of therapy, and the symptoms subsided within two to three days. The results were excellent, with disappearance of cough and dyspnea, euphoria, increased appetite, and capacity for rest, in seven patients, good in two, and mediocre in two. The remission lasted from a few days to a few weeks or several months. One patient with respiratory insufficiency secondary to marked pulmonary emphysema was not benefited by the therapy. The side-effects were less frequent and less marked than those that usually follow the administration of hormonal steroids to patients with asthma. A slight increase in body weight was noted in three patients, and acne pustulosa and a slight moon-shaped face in one.

Hydrocortisone by the Intrapleural Route in Treatment of Parapneumothorax Pleurisy. C. Sartori. Prog. med. 11:401-406 (July 15) 1955 (In Italian) [Naples, Italy].

Results following the intrapleural administration of hydrocortisone to 15 patients in whom pleurisy and empyema developed in the course of therapeutic pneumothorax are reported. The hormone, which was introduced into the pleural cavity in an isotonic suspension after the exudate was aspirated, was given every other day or every three to four days in doses ranging from 25 mg., on the first days, to 100 mg. The total dose ranged from 100 to 960 mg. The anti-inflammatory action of hydrocortisone was marked and rapid in serous and serofibrinous pleurisy, less marked in empyema. The therapy restored to normal or to subfebrile values the elevated temperature in all of the patients; it never aggravated the pulmonary disease; and it improved the general condition of all but one patient. Sartori states that in the patients with serofibrinous and exudative pleurisy hydrocortisone acted in a nonspecific manner by eliminating or decreasing the tissue hyperactivity, which is, in most cases, the physiopathogenic basis of pleurisy that develops during the course of therapeutic pneumothorax. The hormone was less efficacious in purulent pleurisy because, in addition to the allergic-hyperergic factor, the tuberculous bacterial factor was also present.

Mestinon: New Agent in Treatment of Myasthenia Gravis. A. Lønnum. Tidsskr. norske lægefor. 75:581-582 (Aug. 15) 1955 (In Norwegian) [Oslo, Norway].

In the drug treatment of myasthenia gravis, neostigmine and similar substances have long been the best agents. The brief duration of their effect and the frequent side-effects have led to the trial of new substances, among which Mestinon seems to offer many advantages, as observed in seven patients with myasthenia gravis treated with it in the neurological department of the Rikshospital since January, 1955. The maximal effect of Mestinon is not greater than that of neostigmine (Prostigmin), but the by-effects are fewer and less marked. The action of Mestinon is more even, and the patient's well-being is promoted. The agent is most often applied alone, but some patients prefer a combination with neostigmine, which gives the advantage of the rapid effect of neostigmine in addition to the prolonged effect of Mestinon.

PATHOLOGY

Bronchogenic Carcinoma: A Clinicopathologic Study of 75 Fatal Cases. R. S. Armstrong, H. L. Papenfuss and B. C. Russum. Nebraska M. J. 40:315-323 (Sept.) 1955 [Lincoln, Neb.].

The possible relationship of histological type, growth characteristics, and site of tumor origin to prognosis was studied in 60 men and 15 women who died of bronchogenic carcinoma, in whom autopsies were performed and for whom satisfactory clincal records were available. Of the 15 women, 8 had adenocarcinoma, one undifferentiated carcinoma, 5 squamous cell carcinoma, and the histological type was unknown in one. Of the 60 men, 14 had adenocarcinoma, 21 undifferentiated carcinoma, 22 squamous cell carcinoma, one alveolar carcinoma, and the histological type was unknown in 2. Adenocarcinoma thus was observed relatively twice as often in women as in men, and the incidence of squamous cell carcinoma was approximately the same in each sex. Of the 75 tumors, 22 were adenocarcinomas, a higher proportion than usually reported, probably because of the greater number of women in the series. Adenocarcinomas were more rapidly growing, peripherally infiltrating tumors with frequent vascular invasion and metastases; death usually occurred within eight months after symptoms appeared. Squamous cell carcinomas were most commonly relatively circumscribed and grew and extended slowly to produce bronchial obstruction; duration of life from onset of symptoms to death of patients with this type of carcinoma was the longest of the entire series. Undifferentiated carcinomas were even more rapidly growing than the adenocarcinomas; they were centrally infiltrating tumors, producing bronchial obstruction and causing death in 6.9 months. The dominant pathological findings in all cases were bronchial obstruction with peripheral atelectasis or pulmonary inflammation, extensive invasion of extrapulmonary tissues, as well as numerous and diverse metastases. The usual clinical picture suggesting bronchogenic carcinoma consists of cough, dyspnea, and chest pain in a middle-aged white man with associated physical findings of minimal chest signs, anemia, leukocytosis, and a chest roentgenogram with nonspecific changes. The varieties of clinical pictures resulting from the characteristic development of the neoplasm, such as recurrent pneumonia produced by bronchial obstruction, predominant extrapulmonary symptoms caused by metastases, and the value of roentgenograms of bones, are stressed. The findings in the authors' 75 cases suggest that the clinicopathological picture becomes similar for all histological types as the bronchogenic carcinoma progresses. Autopsy findings in patients dying of bronchogenic carcinoma provide excellent background for understanding the pathogenesis of the established advanced disease and aid in diagnosis and palliative therapy, but they fail to furnish the best criteria for early diagnosis. Such criteria must be obtained from analysis of a large series of very early tumors detected by biopsy or removed surgically, or observed incidentally at autopsy.

Cystinosis (Lignac-Fanconi Disease). C. D. Gatzimos, D. M. Schulz and R. L. Newnum. Am. J. Path. 31:791-808 (Sept.-Oct.) 1955 [Ann Arbor, Mich.].

Cystinosis is an uncommon disease of infants and children characterized by retarded development, dwarfism, storage of cystine crystals in the cells of the reticuloendothelial system, and aminoaciduria. Rickets is usually present. Since Lignac's classical description of the disease in 1924, it has been known under such terms as cystine storage disease, cystinosis, and Lignac's disease. It is also known as Lignac-Fanconi disease. The authors briefly mention five cases of this disease, which were reported in the American literature in the three years from 1950 to 1952, inclusive, and describe a case observed by them, which concerned a 33-month-old girl who was hospitalized because of dehydration and acidosis. The child died shortly after the physical examination. In describing the postmortem examination, the authors stress the presence of cystine crystals in the mesenteric lymph nodes; in the reticuloendothelial cells of the spleen; in the liver between the hepatic cords, primarily near the central region of the lobules, throughout the bone marrow, but especially adjacent to the trabeculae; in the medulla of the thymus; in the submucosal lymphoid follicles of the intestine; in the stroma of the choroid plexus; and in the interstitial tissues of the pancreas, thyroid gland, adrenal capsule, lung, and the mucosa of the ileum. Rickets and dwarfism were present. Renal changes consisted of glomerular sclerosis, interstitial fibrosis, arteriolar sclerosis, and hydropic degeneration of the tubular epithelium. Cystine, isolated from mesenteric lymph nodes, was identified by several chemical tests. In retrospect, the clinical features in the present case were rather typical and the diagnosis was suspected while one of the authors was treating the child for recurrent episodes of fever with respiratory infections. Once suspected, the diagnosis may be established by finding cystine deposits in the cornea by use of the slit lamp. Biopsy of the conjunctiva may reveal cystine crystals. When photophobia is present, dystrophic changes may be detected in the corneal epithelium with the aid of fluorescein. Bone marrow aspiration will reveal typical crystals, particularly in stained films. Urine studies by paper partition chromatography reveal aminoaciduria. The degree of renal involvement is variable.

INDUSTRIAL MEDICINE

Disabling Pneumoconiosis from Limestone Dust. A. T. Doig. Brit. J. Indust. Med. **12**:206-216 (July) 1955 [London, England].

Limestones are extensively employed in agriculture; in the building and allied trades; in the chemical and metal industries; in coal mines; in the manufacture of paints, paper, glass, soap, pottery, pharmaceutical preparations, and explosives; in the textile and printing trades; in railway engineering; in furnace construction; and in polishing of metals. Although limestone dust is generally regarded as harmless, the author reports observations on eight limestone workers in whom pneumonoconiosis developed. Five of the patients were grinders of limestone and three were miners. The mean duration of employment that involved exposure to dust of limestone was 26.1 years. Three of the eight men with pneumonoconiosis had no history of exposure to any industrial dust other than limestone, and, in one other, such exposure amounted only to six months as a whinstone quarryman. In all the remaining cases the exposure of the patient to limestone was considerably in excess of exposures to other dusts. Three of the limestone grinders had no obvious disability; of the remaining five pneumonoconiosis patients, three were partially disabled, one was totally disabled, and one had died of the disease. Symptoms were slight or absent in those who were not disabled; in the others dyspnea was the most prominent symptom and cough and sputum were present. X-ray findings were variable; large, massive shadows were present in the fatal case, nodulation in three, reticulonodulation in two, and reticulation with diminished translucency and fluffy shadows in the remaining two cases. Postmortem examination in the fatal case showed extensive nodular fibrosis of the lungs. The noxious constituent of the limestone can only be the calcium carbonate, the free silica, the combined silica or silicates, or one of the other constituents. Some are of the opinion that calcium carbonate dust has a beneficial action on quartz, decreasing its toxicity. The occurrence of these cases of silicosis as a result of exposure to dust containing between 1.8 and 12.1% of free silica and 85 to 95% of calcium carbonate would not appear to indicate any inhibitory effect of the latter material. The pneumonoconiosis hazard in the mining and grinding of at least certain limestones is considerable in spite of the relatively low free-silica content.

Cutting Oils and Squamous-Cell Carcinoma: Part I: Incidence in a Plant with a Report of Six Cases, E. Mastromatteo; **Part II: An Experimental Study of the Carcinogenicity of Two Types of Cutting Oils.** J. P. W. Gilman and S. D. Vesselinovitch. Brit. J. Indust. Med. **12**:240-243 and **12**:244-248 (July) 1955 [London, England].

The occurrence of skin cancer in machine operators is of interest because of its possible relation to exposure to petroleum products, chiefly the cutting oils. The author presents the histories of six patients with squamous-cell carcinoma of the skin and of one patient with papilloma of the skin. The men were employed in a single plant in which various types of machines were used. The time of exposure in five of the cases ranged from 13 to 31 years, with an average of 21 years. The exposed skin of the hand and forearm was involved in all cases except one, in which the scrotum was involved. Three of the patients with carcinoma and the patient with papilloma did most of their work on automatic machines. Two of the cutting oils in use were tested experimentally for their carcinogenic effect. One of these oils was a soluble cutting fluid in the form of a stable oil-in-water emulsion containing active additives, about 45% sulfurized mineral oil base, and 40% water when marketed. It is usually diluted with eight or more parts of water before use. The other oil is a straight cutting oil, a sulfurized mineral oil blended with fatty oils. It is usually cut back with a low viscosity straight paraffin oil before use. The first type of soluble cutting fluid proved to be carcinogenic to three different strains of mice. The response of test groups to a standard skin painting technique varied with the strain used from 19 to 61% tumors after 310 days' exposure. Results proved reproducible and comparatively constant in two trials repeated after an interval of 18 months. The responses in mice to 1:4 and 1:8 aqueous dilutions of this soluble oil were compared with the undiluted product and with a 1:8 used dilution after 365 days' exposure. A marked reduction in the percentage of mice bearing tumors and an increase in induction periods accompanied dilution. Evidence suggests that the chief effect of dilution is the lengthening of the induction period. Results of tests using a straight cutting oil (blend) suggested that this type may also be carcinogenic to the mouse.

RADIOLOGY

Cancer of the Thyroid Gland: Our Experience with Radioactive Iodine. P. E. Russo and H. H. Mathews. South. M. J. **48**:937-940 (Sept.) 1955 [Birmingham, Ala.].

Thirteen patients with cancer of the thyroid treated by I^{131} reacted in one of three different ways: two had high uptake on the part of the tumor, with resultant subjective and objective improvement; four had little uptake but experienced some temporary improvement without marked alteration of the course of their disease; and seven had no uptake and no favorable response to therapy. Most of the patients had had previous surgical and radiation treatment. Six patients of the series are now dead, three of them not having survived over 18 months. Of the seven living, all but one have evidence of existing disease, but there are some in this group who have survived as long as 21 and 26 years with their disease. Surgery, with or without external irradiation, still remains the treatment of choice for the great majority of thyroid carcinomas. A small percentage of these tumors, probably about 15%, will have an avidity for radioiodine, in which case this form of treatment gives excellent results. In patients in whom neither further surgical nor external irradiation therapy is indicated, I^{131} should be administered in an attempt at palliation.

BOOK REVIEWS

Anxiety and Stress: An Interdisciplinary Study of a Life Situation. By Harold Basowitz, Ph.D., Harold Presky, Ph.D., Sheldon J. Korchin, Ph.D., and Roy R. Grinker, M.D. Cloth. $8. Pp. 320, with 44 illustrations. Blakiston Division, McGraw-Hill Book Company, Inc., 330 W. 42nd St., New York 36; 95 Farringdon St., London, E.C.4, England, 1955.

Much of the research on the relationship of stress to anxiety has been conducted either under highly artificial laboratory conditions or with chronically anxious patients. The study of normal persons reacting to the stresses of real life situations has been largely neglected. To remedy this defect the authors went to the airborne training center at Fort Benning, Ga. There they found a population of young men in superb physical condition who showed few manifestations of psychiatric disease. The three week paratroop training program provided a standard situation of physical and emotional stress. The experimenters found it relatively easy to integrate their procedures into the rigid training schedules. This monograph is a report of the psychological and biochemical changes that they observed in a group of soldiers undergoing paratroop training. The book begins with a chapter in which anxiety and stress are defined. The authors emphasize that anxiety is a feeling state that functions adaptively as a signal of impending danger. When this state exceeds certain limits of intensity, anxiety can become a cause of disordered or maladaptive behavior. Since it is a feeling state, anxiety proper can be studied by psychological techniques only. It is complexly interrelated, however, with social, physiological, neurological, and biochemical concomitants, each of which require special methods of study. This chapter is followed by a brief review of recent researches relevant to the authors' study. The remaining chapters take up in detail problems of experimental design, the data they collected, and their analysis of these data. A large number of figures, tables, and summaries help the reader to follow their argument.

Although many of their conclusions are preliminary, several facts stand out. The experimenters found that the paratroop training program was not as stressful for the candidates as they thought it would be, and as a result the induced psychological and biochemical changes were not as extensive as anticipated. They found that fear of failure was a more potent source of stress than fear of painful injury. They confirmed the fact that eosinopenia develops in response to stress. Although an increase in hippuric acid secretion in response to stress that the authors anticipated on the basis of previous work did not occur, those who excreted high levels of hippuric acid initially showed greater psychological and biochemical reactivity to stress than those who did not. They demonstrated an impairment in digit memory and perceptual discrimination in response to stress. Unexpectedly, the authors encountered the most striking evidences of anxiety after the period of training was over, a fact that they referred to as the end phenomenon. Of greater significance than the findings obtained or their interpretation is the fact that the authors achieved their main object, which was to set up a group of conditions permitting the study of anxiety as it develops in a real life situation. They believe that they have laid the groundwork for an extensive investigative program. This monograph may be studied with profit as a contribution to the problem of experimental design by all who are interested in psychosomatic research.

Human Physiology. By F. R. Winton, M.D., D.Sc., Professor of Pharmacology, University College, London, and L. E. Bayliss, Ph.D. Fourth edition. Cloth. $8. Pp. 616, with 236 illustrations. Little, Brown & Company, 34 Beacon St., Boston 6; J. & A. Churchill, Ltd., 104 Gloucester Pl., Portman Sq., London, W.1, England, 1955.

As in the third edition, Drs. Winton and Bayliss are essentially editors rather than authors of this book. In 13 of the 17 chapters, 15 scientists are listed as the authors. This book is primarily written for medical students. The planned brevity of the book is due to the editors' belief that our medical students are expected to learn too much and to think too little, but we must insist that brief but factual outlines of the steps in research that have lead to our present knowledge of the machinery of the human body in health and in disease are stimuli to thinking on the part of our students. The brevity of the book is achieved by elimination of much of this type of data. Does this stimulate our students to think? An able teacher can make up for these shortcomings. The editors state that, in this edition, "Much of the older wood has been drastically pruned, providing space for new shoots. Nine chapters have been largely rewritten." The presentation is usually precise, factual, and up-to-date, but loose thinking and expression may slip in, even in an essentially good book. On page 2 we read: "Perhaps the most characteristic feature of health is that a man can move about as quickly and for as long [a] time as he likes." This is not true. Competing athletes will testify to the contrary, and even a healthy man, trying to run from the charging tiger, is lacking not in will but in speed.

Neurochemistry: The Chemical Dynamics of Brain and Nerve. Edited by K. A. C. Elliott, Irvine H. Page, and J. H. Quastel. Cloth. $19.50. Pp. 900, with illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, Canada, 1955.

This monumental symposium by 32 leading biochemists, physiologists, and neurologists from the United States, Canada, Great Britain, and Sweden constitutes a review of present knowledge of the chemistry of the nervous system. As stated by the editors, such a book cannot be fully comprehensive. Nevertheless, its range is wide. Beginning with a dedicatory biographical sketch of J. L. W. Thudichum (1828-1901), who is described as the father of brain chemistry, it covers the chemical constituents of the nervous system, the basic chemical and metabolic changes underlying neurological function, and such fundamental physiological processes as tissue respiration, circulation of blood and spinal fluid, transmission of the nerve impulse, the exchange of electrolytes, and the wide-ranging actions of acetylcholine, cholinesterase, arterenol, and the steroid hormones. The chemistry of pathological states is also dealt with extensively, including the effects of neurotropic drugs, bacterial toxins, and snake venoms as well as the toxic effects of oxygen. The biochemistry of narcosis, of the convulsive states, and of demyelination are discussed. Although chiefly biochemical in orientation, the book presents some of the clinical aspects of neuromuscular and nutritional disorders of the nervous system, discussions of blood analysis in behavioral disturbances, and such metabolic errors as those found in phenylketonuria and the lipoidoses. Comparative neurochemistry receives attention in a chapter on the nervous system of arthropods, and the volume closes with a short suggestive discussion of the thermodynamics of the message by the mathematician, Norbert Wiener.

It would be difficult to overestimate the importance and value of this authoritative book in which the whole field of neurochemistry is surveyed. (Thudichum's book, appearing in 1884, was an important pioneer contribution, while the only recent similar work, by Page, a present editor, was published in 1937.) For the physiologist and biochemist, it presents a review of the current situation in neurochemistry. For the physician, and especially for the neurologist, it serves as a reference book to which he can go for an introduction to a highly technical field largely unfamiliar to him. For further details extensive bibliographies are given. Certain facts become obvious on reading this book. Despite the vast effort expended and knowledge gained, the deficiencies of our information in many areas are easily apparent. Much is now known about the transmission of the nerve impulse, but nothing about the chemical basis, if it exists, for the specificities of sensory modalities, for inhibition, or for the details of convulsive phenomena. In many areas clinical data far surpass chemi-

---

These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

cal explanation. For example, descriptions of the action of neurotropic drugs by Toman, of bacterial toxins by Stevenson, and of snake venoms by Braganca are clinically full, but the chemical events underlying them are largely unknown. Again, although the editors state, "The ultimate objective of Neurochemistry . . . is the understanding of the phenomena underlying the behavior of nerve, brain and mind," it is abundantly clear that our knowledge is far too fragmentary and discontinuous to make the objective more than a fervent hope.

Contradictions reflect differences of opinion, as is inevitable in any symposium. Debate waxes hot over the roles of acetylcholine and cholinesterase in neuronal function. For example, Nachmanson writes (page 402), "The role of acetylcholine in conduction is both general and essential," while Gerard dissents, "The total body of evidence . . . seems unequivocal in excluding acetylcholine from a significant role in the conduction process proper." Such contradictions are well bridged over in the splendid chapter on the physiological significance of acetylcholine by Burgen and MacIntosh. Their article passes fair and balanced judgment on disputed points and constitutes a valuable reference work for both biochemist and clinician. This epochal book mirrors faithfully the present status of neurochemistry, both as to what is known and as to what theories are disputed and accepted, and it leaves the thoughtful reader with a keen realization that much remains to be done. The index is adequate, the typography and format attractive, and the binding sturdy, as befits a book destined to serve in the laboratory.

A Doctor's Book of Hours Including Some Dimensions of the Emotions. By Merrill Moore. Cloth. $6. Pp. 397. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 24-25 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto, 2B, Canada, 1955.

The author of this book of sonnets is a physician practicing psychiatry, both in private practice and at the clinic. He has traveled afar and has been to war in China and in the Pacific Islands. His observations on people and the things he encounters seem to flow as sonnets from his mind as easily and gracefully as water from a bubbling spring. His poetry is arranged in this book in 12 chapters entitled "Analysis of Men," "Analysis of Women," "Natural History," "Libido," "The Clinic," "The Poet Speaks," "Travel," "War and Violence," "Public Affairs," "City Life," "At the End," and "Philosophic." How so many of his thoughts come to be expressed in poetic form seems to be explained in the following sonnet:

Occasionally I feel an inward need
To take a pen and let my feelings bleed
Through its ink on paper as blood might
Onto grass, the finish of a fight.

Sometimes a constellation in the sky
Moves me so; or the Pleiades wheel by;
And I am touched in ways I cannot say
By the movement of the lights across the bay.

Sometimes travel, sometimes being alone
Seems to cut my feelings to the bone.

Sometimes Pullman cars, an upper berth,
The movement of the winds above the earth
Touch and tease me, will not let me go
Until my pulse, then fast, returns to slow.

Clinical Pathologic Conferences of Cook County Hospital. Volume I: Cardiovascular-Renal Problems. Edited by Hans Popper, M.D., Ph.D., Director, Department of Pathology, Cook County Hospital, Chicago, and Daniel S. Kushner, M.D., Associate Director of Medical Education, Cook County Hospital. Cloth. $5. Pp. 325, with illustrations. Blakiston Division, McGraw-Hill Book Company, Inc., 330 West 42nd St., New York 36, 1954.

One of the striking phenomena of medicine in the 20th century has been the development of new methods for keeping practitioners up-to-date on professional problems and advances. As the editors point out in an interesting historical introduction, clinicopathological conferences, first introduced in simple form by the late Richard Cabot of Boston as a method of teaching medical students, are now commonly used in most American and many European hospitals as one means of interesting and informing their staffs and postgraduate students. The 52 discussants in the present volume are members of the staff of the Cook County Hospital, except for an occasional distinguished visitor. After presentation of the clinical history and physical and technical findings in each patient, diagnostic possibilities are freely canvassed by physicians unacquainted with the pathological findings. The last are then presented, usually by Dr. Hans Popper, with questions and discussion by other members of the group. The book is the first of a series planned to cover different types of disease. A brief index lists final pathological diagnoses under three types of problems, cardiac, vascular, and renal. The work, attractively bound in green cloth, is printed on substantial paper in clear, legible type. The many plates, mostly photographic reproductions of roentgenograms or of gross or microscopic preparations, are well reproduced. The discussion of each case is followed by a brief bibliography referring to the outstanding lesions found. The text, which has been carefully reviewed by the discussants and editors, is clear and understandable. The book presents an interesting and instructive discussion of cardiovascular-renal diseases and their complications, many of the cases being quite unusual. It is worthy of careful perusal.

Gynecology: Surgical Techniques. Compiled and edited by Robert J. Lowrie, M.A., M.D., F.A.C.S., Associate Clinical Professor of Obstetrics and Gynecology, College of Medicine, New York University, New York. Foreword by J. P. Greenhill, M.D. Cloth. $17.75. Pp. 552, with illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 24-25 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto, 2B, Canada, 1955.

This is the companion volume to "Gynecology: Diseases and Minor Surgery," which came out about three years ago. That volume, like this one, was a compilation of articles by many authors and was very well received. Here we have 59 contributors who are truly specialists within a specialty. Although varying techniques are presented by contributors who differ somewhat in their approach, a surprising unanimity is apparent throughout the book. The surgeon who does not regard himself as perfect in his technique or skill should find just what he needs in these pages; the experienced surgeon who is still open-minded to the work of others should be glad to try out other methods described in this book in order to broaden his outlook and to compare the final results. Here we have basic techniques in both major and minor pelvic surgery. The many subheads are printed in bold face, which facilitates reference. In his preface, Dr. Lowrie exhibits a sly sense of humor when he speaks of "the sacred ground of the female pelvis" to be trod by the general surgeon, but "not always with the full blessing of the gynecologist." The compiler has written the first chapter, which deals with the general principles of operative gynecology. The subheads are: Immediate Preparation for Operation; Briefing the Surgeon; Responsibility of the Surgeon; Anesthesia (choice and types of); Supportive Measures; Equipment and Assistance; Extent and Duration of the Operation; The Incision; Adhesions; Closure of the Abdomen; Reoperation; Pregnancy Discovered or Suspected at Laparotomy. The last is of special importance because the surgeon who has failed to diagnose pregnancy will have a hard time explaining his findings after opening the abdomen. It seems trite to insist on a careful, detailed, and exhaustive history, but that must be stressed repeatedly. With few exceptions, the transperitoneal approach in cesarean section would seem preferable to the extraperitoneal because it is simpler and, as some would probably say, "more surgical." Either method, however, is likely to produce an unharmed fetus. Lowrie, a technician of the first order, has invented two self-retaining retractors: one for abdominal or vaginal retraction, the other for the vulva. Many operations can thus be performed without an assistant or with minimal assistance. Moreover, no human body gets in the way of the operator if such retractors are used. The chapter on operations for relief of patients with intractable pain should be of special interest to all gynecologists. One who cannot cure but can bring relief to such patients will be highly praised.

The Hormones: Physiology, Chemistry and Applications. Volume III. Edited by Gregory Pincus and Kenneth V. Thimann. Cloth. $22. Pp. 1012, with illustrations. Academic Press, Inc., 125 E. 23rd St., New York 10, 1955.

Like the preceding volumes, the first of which appeared seven years ago, the present compilation gives an up-to-date critical review of our present knowledge of the hormones. It not only supplements the preceding volumes by including details of recent experimental work, but also many of the chapters supplant outdated previous treatment of the same subjects. As in the earlier volumes, sections are devoted to such topics as plant growth hormones, hormones in invertebrates, and neurohormones, as well as to the chemistry and physiology of the mammalian endocrine glands. The final chapter is devoted to clinical endocrinology. The 25 contributors are well-known workers who are actively engaged in research in these fields, and they give an up-to-date, sound, and documented review of their subjects. Detailed bibliographies follow each chapter, and an author as well as a subject index is included. The book is well organized and printed. It should serve as an excellent textbook and reference volume for the experimental endocrinologist and research worker. Since the book is devoted primarily to the basic biological aspects of the subject, the general practitioner and the practicing endocrinologist will find little of immediate interest in the volume but should find it useful as a source of reference for specific experimental data.

Hearing Therapy for Children. By Alice Streng, M.A., Director, Exceptional Division, Wisconsin State College, Milwaukee, and others. Cloth. $6.75. Pp. 371, *with illustrations. Grune & Stratton, Inc., 381 Fourth* Ave., New York 16; 99 Great Russell St., London, W.C.1, England, 1955.

This volume deals with the testing, management, and rehabilitation of the child with defective hearing. It is not always apparent whether a very young child hears well or, for that matter, hears at all. The authors suggest procedures for testing the hearing of the child who is too young to talk, such as the use of the psychogalvanic skin response audiometer. They tell how to select a hearing aid for a child and how to get the child to wear it. They have collected information from reliable sources as indicated by the bibliography, and it is unfortunate that the index is not up to the same high standard as the text. The book was evidently published before the Council on Physical Medicine and Rehabilitation discontinued its acceptance program. The various responsibilities in the education of the child with defective hearing on the part of the physician, the public health nurse, the speech and hearing therapist, the social worker, and the school administrator are outlined. The volume should find a place on the shelves of hearing rehabilitation centers, clinics for crippled children, and the offices of hearing-aid salesmen.

Treatment in Psychiatry. By Oskar Diethelm, M.D., Professor of Psychiatry, Cornell University Medical College, New York City. Third edition. Cloth. $9.50. Pp. 545. Charles C Thomas, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; The Ryerson Press, 299 Queen St., W., Toronto, 2B, Canada, 1955.

The new edition of this book, first published in 1936, carries forward Adolph Meyer's basic principles, modified by the influence of research and therapeutic experience. Meyer and Freud both regarded mental illness as the result of the patient's difficulty in dealing with his environment. Freud went further in his development of the concepts of the unconscious and of infantile sexuality and contributed a carefully organized technique of therapy called psychoanalysis. The author's main objective appears to be a presentation of a likewise-structured therapeutic approach now called "dynamic psychotherapy," replacing the cumbersome term "distributive analysis and synthesis" used in the previous editions. His avowed point of view is eclectic, i. e., the purposeful use of any therapeutic procedure, physical or psychological, that will aid the search for constructive solutions that fit the patient and his problems. Dynamic psychotherapy is "an analysis along selected dynamic lines and life situations," the dynamic factors including any psychological, psychopathological, physical, or environmental component. After briefly reviewing the various current theories and methods of psychotherapy, the author devotes an entire chapter to a discussion of psychoanalytic procedure. A rather detailed description is presented of pharmacological and physical methods of therapy, including insulin hypoglycemia, electroshock, narcosis, and lobotomy. Under chapter headings of different reaction types, the author elaborates on the application and special adaptations of previously described therapies. In the final chapter, he briefly reports on current progress and trends in psychiatric treatment, such as the use of chlorpromazine and Rauwolfia serpentina.

This book is clearly written, orderly, and presents many carefully condensed case histories with long-term follow-up reports. The chapters devoted to the discussion of the treatment of alcoholism and drug addiction are particularly praiseworthy. Relatively few of the bibliographic references were to recent literature. The nomenclature is not that adopted by the American Psychiatric Association in 1952. The author, contrary to most other investigators, still considers fever therapy the treatment of choice in paresis. His discussion of group therapy is far too brief, and there is no consideration of therapy in wartime psychiatry. Aside from these criticisms, the book is well worth careful reading by all psychiatrists and is an excellent source for the student and general physician looking for easily comprehended methods of therapy in psychiatry.

Journées internationales de médecine sportive militaire, 21-25 juin 1954. La nage en surface et sous-marine appliquée aux nécessités de la Marine *militaire.* Conseil international des sports militaires, semaine de la mer, Académie navale, Livorno. Supplément de la revue "Annali di medicina navale e tropicale." Paper. Pp. 176, with illustrations. Bureau sportif de la Marine militaire italienne. Direction générale de la santé militaire maritime, Rome, Italy, 1955.

This book contains 13 communications delivered at an international congress on the medical aspects of military athletics. The various authors discuss different aspects of aquatic activity: the maintenance of pools used for the instruction of swimmers and divers, the symptoms and mechanism of oxygen intoxication, nervous reactions to immersion, the optical effects of immersing the cornea, hemodynamic and other phenomena noted in underwater swimming, problems of shipwreck, rescue, and resuscitation, and the analysis of accidents (especially regarding decompression sickness) to swimmers and divers. All the contributions are written in compact style, and each is followed by a bibliography not only showing good knowledge of American work but also affording a valuable key to current European publications. This book deserves the attention of every physiologist and is recommended to physicians who deal with swimmers and divers.

Adoption . . . and After. By Louise Raymond. Foreword by Sidonie M. Gruenberg. Cloth. $3. Pp. 238. Harper & Brothers, 49 E. 33rd St., New York 16, 1955.

Understanding and warmth of presentation make this volume desirable reading for couples interested in adopting a child but lacking basic information and guidance about how to proceed. The author draws on her own experience with adoption procedures and uses a wide variety of authoritative data obtained from various professional groups. After preliminary counseling on self-examination by prospective parents, which frequently is overlooked or done too superficially, good advice is given in a chapter on what can be expected to be known about the child. As the author points out, adoption should not be a blind procedure, but at the same time there are no absolute tests that will guarantee perfect results in all cases. The rest of the book deals with various aspects of life with the adopted child. Good advice is provided about telling the child he is adopted, what sort of reaction can be expected, and how to handle it. Matters such as other children in the family, adoption of an older child, and what to do about special problems are considered at length. Because the book includes an extensive list by states of adoption agencies, it is a real working tool. Books for collateral reading are suggested also. This book may well be of interest and assistance to many physicians to whom couples often go in their faltering search for a child.

cal explanation. For example, descriptions of the action of neurotropic drugs by Toman, of bacterial toxins by Stevenson, and of snake venoms by Braganca are clinically full, but the chemical events underlying them are largely unknown. Again, although the editors state, "The ultimate objective of Neurochemistry . . . is the understanding of the phenomena underlying the behavior of nerve, brain and mind," it is abundantly clear that our knowledge is far too fragmentary and discontinuous to make the objective more than a fervent hope.

Contradictions reflect differences of opinion, as is inevitable in any symposium. Debate waxes hot over the roles of acetylcholine and cholinesterase in neuronal function. For example, Nachmanson writes (page 402), "The role of acetylcholine in conduction is both general and essential," while Gerard dissents, "The total body of evidence . . . seems unequivocal in excluding acetylcholine from a significant role in the conduction process proper." Such contradictions are well bridged over in the splendid chapter on the physiological significance of acetylcholine by Burgen and MacIntosh. Their article passes fair and balanced judgment on disputed points and constitutes a valuable reference work for both biochemist and clinician. This epochal book mirrors faithfully the present status of neurochemistry, both as to what is known and as to what theories are disputed and accepted, and it leaves the thoughtful reader with a keen realization that much remains to be done. The index is adequate, the typography and format attractive, and the binding sturdy, as befits a book destined to serve in the laboratory.

A Doctor's Book of Hours Including Some Dimensions of the Emotions. By Merrill Moore. Cloth. $6. Pp. 397. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 24-25 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto, 2B, Canada, 1955.

The author of this book of sonnets is a physician practicing psychiatry, both in private practice and at the clinic. He has traveled afar and has been to war in China and in the Pacific Islands. His observations on people and the things he encounters seem to flow as sonnets from his mind as easily and gracefully as water from a bubbling spring. His poetry is arranged in this book in 12 chapters entitled "Analysis of Men," "Analysis of Women," "Natural History," "Libido," "The Clinic," "The Poet Speaks," "Travel," "War and Violence," "Public Affairs," "City Life," "At the End," and "Philosophic." How so many of his thoughts come to be expressed in poetic form seems to be explained in the following sonnet:

Occasionally I feel an inward need
To take a pen and let my feelings bleed
Through its ink on paper as blood might
Onto grass, the finish of a fight.

Sometimes a constellation in the sky
Moves me so; or the Pleiades wheel by;
And I am touched in ways I cannot say
By the movement of the lights across the bay.

Sometimes travel, sometimes being alone
Seems to cut my feelings to the bone.

Sometimes Pullman cars, an upper berth,
The movement of the winds above the earth
Touch and tease me, will not let me go
Until my pulse, then fast, returns to slow.

Clinical Pathologic Conferences of Cook County Hospital. Volume I: Cardiovascular-Renal Problems. Edited by Hans Popper, M.D., Ph.D., Director, Department of Pathology, Cook County Hospital, Chicago, and Daniel S. Kushner, M.D., Associate Director of Medical Education, Cook County Hospital. Cloth. $5. Pp. 325, with illustrations. Blakiston Division, McGraw-Hill Book Company, Inc., 330 West 42nd St., New York 36, 1954.

One of the striking phenomena of medicine in the 20th century has been the development of new methods for keeping practitioners up-to-date on professional problems and advances. As the editors point out in an interesting historical introduction, clinicopathological conferences, first introduced in simple form by the late Richard Cabot of Boston as a method of teaching medical students, are now commonly used in most American and many European hospitals as one means of interesting and informing their staffs and postgraduate students. The 52 discussants in the present volume are members of the staff of the Cook County Hospital, except for an occasional distinguished visitor. After presentation of the clinical history and physical and technical findings in each patient, diagnostic possibilities are freely canvassed by physicians unacquainted with the pathological findings. The last are then presented, usually by Dr. Hans Popper, with questions and discussion by other members of the group. The book is the first of a series planned to cover different types of disease. A brief index lists final pathological diagnoses under three types of problems, cardiac, vascular, and renal. The work, attractively bound in green cloth, is printed on substantial paper in clear, legible type. The many plates, mostly photographic reproductions of roentgenograms or of gross or microscopic preparations, are well reproduced. The discussion of each case is followed by a brief bibliography referring to the outstanding lesions found. The text, which has been carefully reviewed by the discussants and editors, is clear and understandable. The book presents an interesting and instructive discussion of cardiovascular-renal diseases and their complications, many of the cases being quite unusual. It is worthy of careful perusal.

Gynecology: Surgical Techniques. Compiled and edited by Robert J. Lowrie, M.A., M.D., F.A.C.S., Associate Clinical Professor of Obstetrics and Gynecology, College of Medicine, New York University, New York. Foreword by J. P. Greenhill, M.D. Cloth. $17.75. Pp. 552, with illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 24-25 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto, 2B, Canada, 1955.

This is the companion volume to "Gynecology: Diseases and Minor Surgery," which came out about three years ago. That volume, like this one, was a compilation of articles by many authors and was very well received. Here we have 59 contributors who are truly specialists within a specialty. Although varying techniques are presented by contributors who differ somewhat in their approach, a surprising unanimity is apparent throughout the book. The surgeon who does not regard himself as perfect in his technique or skill should find just what he needs in these pages; the experienced surgeon who is still open-minded to the work of others should be glad to try out other methods described in this book in order to broaden his outlook and to compare the final results. Here we have basic techniques in both major and minor pelvic surgery. The many subheads are printed in bold face, which facilitates reference. In his preface, Dr. Lowrie exhibits a sly sense of humor when he speaks of "the sacred ground of the female pelvis" to be trod by the general surgeon, but "not always with the full blessing of the gynecologist." The compiler has written the first chapter, which deals with the general principles of operative gynecology. The subheads are: Immediate Preparation for Operation; Briefing the Surgeon; Responsibility of the Surgeon; Anesthesia (choice and types of); Supportive Measures; Equipment and Assistance; Extent and Duration of the Operation; The Incision; Adhesions; Closure of the Abdomen; Reoperation; Pregnancy Discovered or Suspected at Laparotomy. The last is of special importance because the surgeon who has failed to diagnose pregnancy will have a hard time explaining his findings after opening the abdomen. It seems trite to insist on a careful, detailed, and exhaustive history, but that must be stressed repeatedly. With few exceptions, the transperitoneal approach in cesarean section would seem preferable to the extraperitoneal because it is simpler and, as some would probably say, "more surgical." Either method, however, is likely to produce an unharmed fetus. Lowrie, a technician of the first order, has invented two self-retaining retractors: one for abdominal or vaginal retraction, the other for the vulva. Many operations can thus be performed without an assistant or with minimal assistance. Moreover, no human body gets in the way of the operator if such retractors are used. The chapter on operations for relief of patients with intractable pain should be of special interest to all gynecologists. One who cannot cure but can bring relief to such patients will be highly praised.

The Hormones: Physiology, Chemistry and Applications. Volume III. Edited by Gregory Pincus and Kenneth V. Thimann. Cloth. $22. Pp. 1012, with illustrations. Academic Press, Inc., 125 E. 23rd St., New York 10, 1955.

Like the preceding volumes, the first of which appeared seven years ago, the present compilation gives an up-to-date critical review of our present knowledge of the hormones. It not only supplements the preceding volumes by including details of recent experimental work, but also many of the chapters supplant outdated previous treatment of the same subjects. As in the earlier volumes, sections are devoted to such topics as plant growth hormones, hormones in invertebrates, and neurohormones, as well as to the chemistry and physiology of the mammalian endocrine glands. The final chapter is devoted to clinical endocrinology. The 25 contributors are well-known workers who are actively engaged in research in these fields, and they give an up-to-date, sound, and documented review of their subjects. Detailed bibliographies follow each chapter, and an author as well as a subject index is included. The book is well organized and printed. It should serve as an excellent textbook and reference volume for the experimental endocrinologist and research worker. Since the book is devoted primarily to the basic biological aspects of the subject, the general practitioner and the practicing endocrinologist will find little of immediate interest in the volume but should find it useful as a source of reference for specific experimental data.

Hearing Therapy for Children. By Alice Streng, M.A., Director, Exceptional Division, Wisconsin State College, Milwaukee, and others. Cloth. $6.75. Pp. 371, with illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16; 99 Great Russell St., London, W.C.1, England, 1955.

This volume deals with the testing, management, and rehabilitation of the child with defective hearing. It is not always apparent whether a very young child hears well or, for that matter, hears at all. The authors suggest procedures for testing the hearing of the child who is too young to talk, such as the use of the psychogalvanic skin response audiometer. They tell how to select a hearing aid for a child and how to get the child to wear it. They have collected information from reliable sources as indicated by the bibliography, and it is unfortunate that the index is not up to the same high standard as the text. The book was evidently published before the Council on Physical Medicine and Rehabilitation discontinued its acceptance program. The various responsibilities in the education of the child with defective hearing on the part of the physician, the public health nurse, the speech and hearing therapist, the social worker, and the school administrator are outlined. The volume should find a place on the shelves of hearing rehabilitation centers, clinics for crippled children, and the offices of hearing-aid salesmen.

Treatment in Psychiatry. By Oskar Diethelm, M.D., Professor of Psychiatry, Cornell University Medical College, New York City. Third edition. Cloth. $9.50. Pp. 545. Charles C Thomas, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; The Ryerson Press, 299 Queen St., W., Toronto, 2B, Canada, 1955.

The new edition of this book, first published in 1936, carries forward Adolph Meyer's basic principles, modified by the influence of research and therapeutic experience. Meyer and Freud both regarded mental illness as the result of the patient's difficulty in dealing with his environment. Freud went further in his development of the concepts of the unconscious and of infantile sexuality and contributed a carefully organized technique of therapy called psychoanalysis. The author's main objective appears to be a presentation of a likewise-structured therapeutic approach now called "dynamic psychotherapy," replacing the cumbersome term "distributive analysis and synthesis" used in the previous editions. His avowed point of view is eclectic, i. e., the purposeful use of any therapeutic procedure, physical or psychological, that will aid the search for constructive solutions that fit the patient and his problems. Dynamic psychotherapy is "an analysis along selected dynamic lines and life situations," the dynamic factors including any psychological, psychopathological, physical, or environmental component. After briefly reviewing the various current theories and methods of psychotherapy, the author devotes an entire chapter to a discussion of psychoanalytic procedure. A rather detailed description is presented of pharmacological and physical methods of therapy, including insulin hypoglycemia, electroshock, narcosis, and lobotomy. Under chapter headings of different reaction types, the author elaborates on the application and special adaptations of previously described therapies. In the final chapter, he briefly reports on current progress and trends in psychiatric treatment, such as the use of chlorpromazine and Rauwolfia serpentina.

This book is clearly written, orderly, and presents many carefully condensed case histories with long-term follow-up reports. The chapters devoted to the discussion of the treatment of alcoholism and drug addiction are particularly praiseworthy. Relatively few of the bibliographic references were to recent literature. The nomenclature is not that adopted by the American Psychiatric Association in 1952. The author, contrary to most other investigators, still considers fever therapy the treatment of choice in paresis. His discussion of group therapy is far too brief, and there is no consideration of therapy in wartime psychiatry. Aside from these criticisms, the book is well worth careful reading by all psychiatrists and is an excellent source for the student and general physician looking for easily comprehended methods of therapy in psychiatry.

Journées internationales de médecine sportive militaire, 21-25 juin 1954. La nage en surface et sous-marine appliquée aux nécessités de la Marine militaire. Conseil international des sports militaires, semaine de la mer, Académie navale, Livorno. Supplément de la revue "Annali di medicina navale e tropicale." Paper. Pp. 176, with illustrations. Bureau sportif de la Marine militaire italienne. Direction générale de la santé militaire maritime, Rome, Italy, 1955.

This book contains 13 communications delivered at an international congress on the medical aspects of military athletics. The various authors discuss different aspects of aquatic activity: the maintenance of pools used for the instruction of swimmers and divers, the symptoms and mechanism of oxygen intoxication, nervous reactions to immersion, the optical effects of immersing the cornea, hemodynamic and other phenomena noted in underwater swimming, problems of shipwreck, rescue, and resuscitation, and the analysis of accidents (especially regarding decompression sickness) to swimmers and divers. All the contributions are written in compact style, and each is followed by a bibliography not only showing good knowledge of American work but also affording a valuable key to current European publications. This book deserves the attention of every physiologist and is recommended to physicians who deal with swimmers and divers.

Adoption . . . and After. By Louise Raymond. Foreword by Sidonie M. Gruenberg. Cloth. $3. Pp. 238. Harper & Brothers, 49 E. 33rd St., New York 16, 1955.

Understanding and warmth of presentation make this volume desirable reading for couples interested in adopting a child but lacking basic information and guidance about how to proceed. The author draws on her own experience with adoption procedures and uses a wide variety of authoritative data obtained from various professional groups. After preliminary counseling on self-examination by prospective parents, which frequently is overlooked or done too superficially, good advice is given in a chapter on what can be expected to be known about the child. As the author points out, adoption should not be a blind procedure, but at the same time there are no absolute tests that will guarantee perfect results in all cases. The rest of the book deals with various aspects of life with the adopted child. Good advice is provided about telling the child he is adopted, what sort of reaction can be expected, and how to handle it. Matters such as other children in the family, adoption of an older child, and what to do about special problems are considered at length. Because the book includes an extensive list by states of adoption agencies, it is a real working tool. Books for collateral reading are suggested also. This book may well be of interest and assistance to many physicians to whom couples often go in their faltering search for a child.

QUERIES AND MINOR NOTES

HEREDITARY OPTIC ATROPHY

To the Editor:—*A 17-year-old white girl has hereditary pigment degeneration of the retina (typical "bone corpuscle pigment," waxy yellow optic atrophy, constricted visual fields, and hemeralopia). The serology is negative. One sibling is also affected. The patient's vision is 20/200. Is the ocular condition an absolute indication for interruption of her pregnancy? (1) By reason of possible acceleration of oncoming blindness of the mother? (2) By reason of possible pigment degeneration in the child, if there is no consanguinity and if the father is a fifth cousin with no known pigment degeneration in his family?*

M.D., Ohio.

This inquiry was referred to three consultants, whose respective replies follow.—Ed.

Answer.—The serious aggravation of constitutional retinal pigmentary degeneration by normal pregnancy and labor is rare unless there is potential or actual complicating disease. As these conditions cannot usually be foretold, the possibility of further sight loss must be considered. The information given is insufficient to determine the exact genetic method of transmission and the risks involved to the offspring. Obviously, every potential and actual aggravating disease to the mother should be diagnosed and treated, and a genetic survey should be made to determine the method of transmission and the risks involved to the potential offspring. The prompt termination of pregnancy, however, is fully justified in this case by (1) the risk of aggravation to the mother's already defective sight, (2) the progressive course of the disease in this case, and (3) the risk of transmission to the unborn child and its progeny.

Answer.—Pregnancy has no deleterious effect upon the progress of hereditary optic atrophy. Consequently its interruption is not indicated in the interest of the mother's condition. Hereditary optic atrophy may be a dominant trait, a recessive one, or a sex-linked one. It would be necessary to determine the mode of inheritance of the condition before it would be possible to state, with any reasonable degree of accuracy, the chance that the unborn child will be affected. This means that the eyes of many of the relatives should be examined, even though they may not have grossly defective vision. The eyes of these relatives may exhibit only slight but definite characteristics of the defect (Snyder, L. H.: Clinical and Social Aspects of Heredity in Ophthalmology, Acta XVI Concilium Ophthalmologicum [Britannia] 1950). Even though a genetic study of the family might suggest that the unborn child is very likely to be affected, there would still be a chance that it would be normal. In view of the latter possibility there will still be a difference of opinion as to whether therapeutic abortion is indicated. It is currently believed that a committee of specialists should review all evidence before any therapeutic abortion is undertaken. This case raises the question as to whether a pregnancy should be terminated in order to prevent the birth of a child who is likely to exhibit any serious congenital defect. For a comprehensive review of current thinking upon the whole problem of therapeutic abortion, from the ethical, as well as from the medical point of view, a volume has been published recently on this subject (Rosen, H.: Therapeutic Abortion: Medical, Psychiatric, Anthropological and Religious Considerations, New York, the Julian Press, 1954).

Answer.—Duke-Elder, in his "Textbook of Ophthalmology" (volume 3, St. Louis, C. V. Mosby Company, 1941), says: "Since Liebreich (1861) drew attention to the prevalence of pigmentary degeneration of the retina in certain families and discovered that the subjects of the disease were often the children of cousins, the hereditary aspects of this condition have excited a very great deal of interest and have stimulated an enormous literature. The most authoritative study of the early literature and collection of data was provided by Nettleship (1907-08) who found in 976 families in which the disease occurred evidence of its herditary transmission in about half the cases, without consanguinity in 230 instances (23.5%), with consanguinity in 226 (23%), and with both heredity and consanguinity in 32 (3.5%). A further elaborate study of 40 pedigrees was made by Usher (1913), and a survey of the literature by Bell (1922). Indeed, so frequently is it hereditary that it can be accepted as certain that it is so in many cases where proof is wanting and superficial questioning reveals no indications of its incidence in the immediate precedents." Duke-Elder also says: "From the eugenic point of view the important fact emerges that no reliable advice can be given as to the possibility of transmission to the next generation until the nature of the pedigree has been worked out in each individual case. When it appears as a dominant characteristic each affected individual gets the disease directly from one parent and the chances are that it will be passed on to half the children. Unless it is considered right to produce children who will eventually become blind, these people should have none. When it appears a simple recessive the prohibition of inter-marriages within the same pedigree or into a family carrying the trait becomes imperative, and if they do occur they should be sterile. When it is inherited as a recessive sex-linked character half the sisters and all the daughters of the affected man will tend to pass the disease to half their sons; the responsibility therefore rests upon the women of the family. The determining factor in the incidence of primary pigmentary degeneration is heredity, and owing to the proportion of sex-linked cases, males are more frequently affected than females."

CARBON MONOXIDE POISONING DURING PREGNANCY

To the Editor:—*A 30-year-old white married woman had two healthy children, ages 6 and 3, after unremarkable pregnancies and deliveries. She has just finished her first trimester of a third pregnancy, and has been spotting throughout the last month. During the last two months she has been exposed to carbon monoxide in amounts sufficient to cause the entire family to complain of headaches and nausea. Can this amount of carbon monoxide cause the staining? Can carbon monoxide in amounts insufficient to cause unconsciousness do damage to the fetus? Can it cause fetal death and/or abortion?*

Isidore M. Goodman, M.D., Brooklyn, N. Y.

Answer.—Because of the confusion in the literature about the passage of carbon monoxide across the placenta from maternal to fetal blood, Curtis and co-workers (*A. M. A. Arch. Path.* **59**:677 [June] 1955) reviewed the literature and performed animal experiments. They found 20 cases of carbon monoxide poisoning during pregnancy and proof that carbon monoxide does pass from the maternal to the fetal circulation. The percentage of saturation of fetal hemoglobin with carbon monoxide is dependent upon the percentage of saturation of the mother's hemoglobin with carbon monoxide and the length of time of exposure to the gas. The saturation of fetal hemoglobin with carbon monoxide lags significantly behind the saturation of the maternal hemoglobin, owing to the slow dissociation of maternal carboxyhemoglobin. After a period of time an equilibrium is approached between fetal and maternal blood. In a few instances the infants later showed cerebral disorders. In view of the foregoing study it is possible for the fetus in the case cited to have been affected. However, the chances for any permanent damage are not great. If the fetus dies in utero from the carbon monoxide, an abortion will usually follow.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

SLIPPED INTERVERTEBRAL DISKS

To the Editor:—*Kindly give information on the operation for slipped intervertebral disks. The region involved is the lumbar. I am mainly interested in the percentages of relief and cures for this surgery when done by orthopedic surgeons.*

M.D., Michigan.

Answer.—Recently published series of cases have indicated that an increasing number of surgeons favor a combined procedure of removal of the disk and spinal fusion, providing the spinal fusion can be successful in a high percentage of cases. Myelograms, for diagnostic purposes, are of questionable value. They do not decide whether or not an operation should be done. Careful examination at the time of operation will disclose more information than can be obtained by any myelogram. In the hands of a skilled orthopedic surgeon, there will be considerable variation in the success of operative procedure depending on the type of fusion performed and, the most important factor, the location of the defective disk. A herniation of the fifth lumbar disk, subjected to an excision of the disk and curettement of the disk space followed by an adequate posterior fusion or a combined interbody and posterior fusion, should and does result in close to 100% success. Fusion procedures between the fourth and fifth lumbar vertebrae are much more difficult because of the structural instability. When, as a result of degenerative changes, acute trauma, or repeated minimal trauma, an intervertebral disk suffers a disruption of its mechanical integrity to such a degree that there is impingement of the disk substance on the nerve roots in the spinal canal or irritation of the sensory nerves in the annulus fibrosis, the symptoms produced are said to be due to a slipped intervertebral disk. There are a number of other names for this condition. There is wide diversity of opinion as to the character of the operation that should be done in these cases. If they have failed to respond to adequate conservative treatment, the neurosurgeons for the most part, simply remove the disk. A removal and curettage of the fourth disk space, followed by an adequate interbody fusion combined with a posterior fusion that includes intrinsic internal autogenous bone graft fixation of the articular facets combined with a central prop of maximal strength should, at this level, produce in excess of 90% good results.

RECURRENT SKIN INFECTIONS

To the Editor:—*An 18-year-old boy has had three attacks of erysipelas of the right thigh during the past four months. He has responded well each time to 600,000 units of penicillin daily intramuscularly, for about four doses. He has no evidence of epidermophytosis or any kind of infection on his entire lower extremities. He has, however, enlarged tonsils that have large crypts; pus may be pressed out of both tonsils. He also has poor oral hygiene and several bad teeth. Do you think a tonsillectomy and extraction of the bad teeth would help clear up the erysipelas?*

T. N. Humphrey, M.D., Selmer, Tenn.

Answer.—In this instance one must question the diagnosis of erysipelas, which is a hemolytic Streptococcus infection of the skin and for which there should be a local atrium of infection. Some other type of skin inflammation should be suspected. If the tonsils are badly infected, as suggested by the questioner, and the teeth show areas of rarefaction at their roots, one could hardly make any mistake in removing these foci of infection. However, their relation to the erysipelas-like lesions of the thigh is questionable. Ordinarily the skin manifestations resulting from hemolytic Streptococcus infections of the tonsils would be more diffuse. If the lesion in question responds to penicillin, it should, of course, be treated with this antibiotic again. If the erysipelas recurs, an attempt might be made to confirm the diagnosis by making a needle puncture into the skin near the edge of the lesion, then injecting sterile saline solution into the skin about 4 to 5 mm. away and drawing up some of the saline solution that exudes through the first needle puncture for culture on blood agar. Often hemolytic streptococci may be cultured from the edge of the advancing erysipelas lesion in this way.

VARICOSE VEINS

To the Editor:—*What is the present attitude on treatment of varicose veins with injectable sclerosing agents?*

L. Edward Giovine, M.D., Woodside, N. Y.

Answer.—The injection treatment of varicose veins was popular in the 1920's and still has some staunch adherents. However it became obvious in the early 1930's that the increased venous pressure that results from the overflow from the deep venous system through incompetent saphenous and perforator valves soon recanalizes the obliterated venous segments. Worse than that the obliteration of dilated segments often produces other dilatations, thus scattering the varices, as long as their connection with the feeding systems is not interrupted. For this reason, the multiple ligations and stripping procedures have certainly displaced the sclerosing therapy in most institutions. Following an extensive stripping of the long and short saphenous vein and the individual ligation of perforators, a few distended varicosities may remain. These are injected in one sitting about two weeks after operation to complete the treatment.

CHANGES IN URINE FOLLOWING PAS THERAPY

To the Editor:—*Please discuss chemical changes in the urine of tuberculous patients who receive sodium* p*-aminosalicylic acid. We have consistently encountered atypical reactions for urobilinogen in these patients.*

Arthur Hirsch, M.D., Woodbine, N. J.

Answer.—Most clinical tests for urobilinogen involve the use of Ehrlich's aldehyde reagent (*p*-dimethylaminobenzaldehyde). *p*-Aminosalicylic acid (PAS) also gives a strong color with this reagent, and in fact a number of colorimetric procedures for the determination of *p*-aminosalicylic acid are based upon the use of this reagent. It is known that a small amount of free *p*-aminosalicylic acid is excreted in human urine, and this might account for your "atypical" urobilinogen tests. Urine chemistry is essentially normal on continued administration of *p*-aminosalicylic acid with one striking exception. Several reports have appeared in the literature on the presence of reducing substances in urine following the administration of *p*-aminosalicylic acid. The causative agent has not been identified with certainty, but it appears to be associated with the presence of a glucuronic acid conjugate of *p*-aminosalicylic acid. This does not occur in all patients and may represent an alternate pathway of metabolism for the drug. The principal metabolite of *p*-aminosalicylic acid is the N-acetyl derivative, and a conjugate with glycine has also been described.

UNDESCENDED TESTICLE

To the Editor:—*What is the accepted therapy for an undescended left testicle in an otherwise well-developed, normal 3-year-old boy? The undescended testicle is not palpable in the inguinal canal, and there is no hernia present. Please specify kind and dose of hormone and if and when surgical therapy should be done.*

M.D., New York.

Answer.—Unilateral undescended testis in an otherwise normal boy signifies congenital absence of the testis, hypoplastic testis that has failed to descend, a normal testis that has failed to descend because of abnormal attachments or obstruction at the internal ring, a migratory testis (pseudocryptorchidism), or an ectopic testis usually present somewhere in the perineal region outside of the inguinal canal. If the scrotum is underdeveloped on the side of the undescended testis, it means that in all probability the testis had never been in the scrotum and therefore usually eliminates the possibility of a migratory testis. If an ectopic testis has been excluded, the following management is recommended. No treatment is necessary until the boy is 6 to 8 years of age, at which time hormone therapy may be tried for the following reasons: if the testis is hypoplastic or underdeveloped, it may descend following hormonal stimulation; if the testis is migratory, hormone therapy results in a rapid, dramatic descent. If the testis is present and is unable to descend because of abnormal attachments or obstruction at the internal inguinal ring, hormone stimulation may cause swelling of the testis with pain or discomfort in the area, indicating its presence.

If a reasonable course of hormone therapy fails, then operative interventions should be done immediately thereafter to avoid secondary atrophy of a testis that may be present and brought down surgically and to determine whether or not a testis is present and under what circumstances. If a testis is present that cannot be placed in the scrotum by accepted surgical procedures, it should be removed, as atrophy will occur eventually and carcinoma may develop at a later age. If hormone therapy is attempted, the following is recommended: chorionic gonadotrophin, 500 to 1,000 I. U. three times weekly intramuscularly for a maximum of 12 injections in most instances.

ROENTGENOGRAMS TAKEN DURING PREGNANCY

To the Editor:—*What are the chances of injuries to the fetus if a series of x-rays are taken for an intravenous pyelogram in a young woman who is presumably one and a half to two months pregnant? Five roentgenograms were taken with a tube setting of 30 in. distance, 70 kv., and 100 ma. Duration of exposure was 1 second for each of the films.*

M.D., California.

Answer.—Greenhill's "Obstetrics," 11th edition, 1955, page 166, says: "Roentgenography for diagnostic purposes in obstetrics entails no risk. For each film exposure the maximal energy delivered into the vagina, as measured with an ionization chamber, is 2 r. When five film studies are made, which is the most complete type of study, about 7 r are delivered. This is well within the safety limit." While most roentgenologists hold the foregoing opinion, geneticists are very much worried about any use of x-rays for diagnostic purposes during pregnancy because of the harm that results from x-ray exposure to lower animals.

ODORS IN POORLY VENTILATED ROOMS

To the Editor:—*Please explain how to deal with odors in closed rooms with rather poor ventilation. The odors are of "organic" nature such as sweat. I have tried some commercial preparations dispersed by some modification of the electric current; these preparations have a penetrating boarding-house smell that is worse than the odor to be dealt with. Would Glycol vaporizers be of value for this purpose?*

M.D., New York.

Answer.—It is generally considered that odors from sweat are due not so much to volatile material originally present but to the action of bacteria and mold on perspiration. The general principles involved in control of such odors are (1) the removal of the source of the odor and (2) provision for proper ventilation. Instruments and materials for which claims are made concerning the removal of odors generally operate on the principle of dulling the sense of smell or through a masking action. Glycol vaporizers have not been shown to be of use in overcoming organic odors, e. g., sweat in stale air. The room containing the odor should have removed from it articles to which the odor is clinging, should then be thoroughly ventilated, and finally should be washed down with water containing disinfectant such as sodium hypochlorite and the quaternary ammonium compounds.

DISLOCATION OF TOE

To the Editor:—*Please discuss chronic nontraumatic dislocation of the second toe in older obese women.*

Ivan Gilbert, M.D., Terre Haute, Ind.

Answer.—Chronic nontraumatic dislocation of the second toe in older obese women is rare. The condition is probably more common in patients who have had longstanding mild rheumatoid arthritis. Whatever the etiology may be, it is not always sufficiently painful to require treatment. When the condition is painful, it is most effectively treated by excision of the proximal phalanx, that is, subperiosteal removal of the proximal phalanx of this toe. To prevent the toe from markedly shortening, it is advisable to make 3-mm. to 4-mm. incisions in the opposing contacting surfaces of the first toe and the second toe just proximal to the ends of these toes and suturing the two toes together.

HEMOGLOBIN VALUES

To the Editor:—*Are there any differences in hemoglobin standards (grams and per cent) between newborn infants, adults, and pregnant women?*

F. M. Dougherty, M.D., Pottsville, Pa.

Answer.—It is generally accepted that the use of per cent in expressing hemoglobin values is misleading, since there is a normal variation in values from one age to another, from one sex to another, and even normally from one individual to another. At birth the normal values for hemoglobin are high, usually in the range of 19 to 20 gm. per 100 cc. with occasionally even higher figures. This level decreases steadily to reach 12 to 14 gm. per 100 cc. at the end of three months (the so-called physiological anemia of infancy), and persists at this level for a year or slightly longer, rising slowly thereafter to attain a level of about 14 gm. per 100 cc. by the fourth or fifth year. There is little subsequent change in the hemoglobin level in females until pregnancy occurs. The male level rises at puberty to 15 to 16 gm. per 100 cc., where it stays throughout adulthood. During pregnancy the total blood volume gradually increases by one-fourth, so that by term the hemoglobin level drops about 15% below the so-called normal value. This decrease begins in the first trimester and produces what is apparently a normocytic but physiological anemia. Following delivery, the hemoglobin level returns to normal levels by the fifth or sixth month.

ANTABUSE THERAPY

To the Editor:—*We use Antabuse frequently in our cases of chronic alcoholism. Does Antabuse have any unfavorable effects in cases of peptic ulcer?* *M.D., Massachusetts.*

Answer.—Disulfiram (Antabuse) is in all probability a mild gastric irritant. When it is given experimentally to animals in large doses vomiting and diarrhea have been produced; at autopsy evidence of mucosal inflammation has been observed by Child and co-workers (*Am. J. Psychiat.* **107**:774, 1951). Gastrointestinal symptoms such as nausea, vomiting, abdominal cramps, diarrhea, and constipation are not uncommon in patients given Antabuse; however, these symptoms appear to be a function of dosage and usually can be controlled by regulation of the dose. No reports indicating that peptic ulcer is aggravated by doses of Antabuse have been found in the literature; there have been no reported studies on the effect of this drug on gastric secretion. Peptic ulcer is not a recognized contraindication to Antabuse therapy.

RECURRING PAROTITIS

To the Editor:—*A 7½-year-old boy has had recurrent swelling of the parotid glands since the age of 4. A maternal aunt has hay fever. The swellings are usually bilateral and occasionally unilateral and are, in some instances, of considerable size. These attacks have been associated with temperature up to 103 F (39.5 C). Roentgenograms revealed no opaque calculi or other abnormalities. Blood cell studies, including bone marrow, have been within normal limits. He has been treated with antibiotics, orally and intramuscularly and, administered, in addition, with autogenetic vaccine without much benefit. For a year, the recurrent bilateral swellings have persisted in spite of all these therapies. He has been referred for further investigation, at which time the parotid ducts were found to be patent following the introduction of a contrasting medium. What further can be offered this patient?*

Joseph H. Fries, M.D., Brooklyn, N. Y.

Answer.—The description of the condition present in this young patient fits in well with so-called recurrent swelling of the parotid gland or so-called recurring parotitis. The etiological basis of the condition is not known, and there has been no agreement regarding effective treatment. Perhaps the most hopeful aspect of the problem is that the condition ceases in a considerable number of patients during the teen-age period. A brief, but good, discussion is to be found in the *A. M. A. American Journal of Diseases of Children*, October, 1952, page 468.

THE JOURNAL

of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 159, NO. 12
CHICAGO, ILLINOIS
COPYRIGHT, 1955, BY AMERICAN MEDICAL ASSOCIATION
NOVEMBER 19, 1955

IMPORTANCE OF DIAGNOSTIC METHODS IN PHYSICAL MEDICINE

William H. Schmidt, M.D., Philadelphia

Great advances in physical medicine and rehabilitation have been made in recent years, but there is still a lack of appreciation of the importance of diagnostic procedures; yet diagnosis was one of the earliest activities of men working in the field of physical medicine. Jallibert first induced muscle contraction by electric spark in 1732. Thus began the use of electrical currents in the diagnosis of neuromuscular disorders. In 1786 Galvani produced muscle contraction by the constant current, and later Remak determined the location of motor points so accurately that they are still used today. Further advances in the diagnostic use of electric current have run apace with the development of our knowledge of electricity in general. The treatment of peripheral nerve lesion is an important part of our work in physical medicine, and the advances made in the diagnosis and prognosis of nerve lesion has been of immense importance in determining the treatment of this condition. A large number of the casualties of both world wars were peripheral nerve lesions, and industrial injuries include an even larger percentage of these lesions An accurate knowledge of the exact condition of the nerve supplying a muscle leads to correct treatment and better prognosis. It is also important in determining whether a nerve suture is necessary and the exact time to do it and whether the nerve repair has been successful, thus saving months of waiting to see if the muscle will regain its contractility.

QUALITATIVE TEST

The oldest muscle test was the reaction of degeneration, which is purely a qualitative test and tells only that there is a lesion of the nerve but does not tell the extent of the lesion. It is a simple test, easily done, and of much practical use today. There are many general neuromuscular diseases in which there is muscle weakness either localized or general, and the reaction of degeneration will aid in diagnosis by determining whether the condition is due to a central lesion or a lesion of the peripheral nerve.

There are four criteria that explain the use of reaction of degeneration: 1. A muscle will not contract to interrupted faradic current unless the nerve is intact. 2. In a normal muscle with intact nerve the negative closing contraction of the galvanic current is greater than the positive. 3. Any change from this normal formula constitutes a reaction of degeneration. Either the negative and positive contraction become equal or there is a revisal of form where the positive becomes greater than the negative, and in a complete reaction of degeneration there is no contraction to either the negative or positive stimulation. 4. Whenever the reaction of degeneration is present the lesion is in the peripheral motor neuron.

QUANTITATIVE TEST

It soon became evident that we also needed a quantitative test, and the earliest one was the condenser method of testing. A series of condensers of known capacity was used. The correct condenser to produce a contraction was determined. At subsequent testing if a greater capacity was required to produce a contraction it meant the degeneration was increasing, whereas if a lesser capacity produced a contraction the nerve was regenerating. This gave us a quantitative test and roughly enabled us to determine the progress of regeneration. A more accurate quantitative test for nerve degeneration was the chronaxy test developed by Lapicque. Chronaxy is the time required for the excitation of a nerve or muscle by a definite stimulus. The smallest amount of current without regard to its duration that will produce the smallest perceptible contraction is determined. This is called the threshold of excitation, or rheobase. This threshold of excitation is doubled. Once this is obtained the length of times it must act to produce a contraction is determined. An apparatus is used that accurately determines the time, usually measured in 0.001 second and called sigma. A normal muscle will respond in 0.00067 second, whereas a degenerating nerve may require 0.01, 0.05, or even 0.1 second. It is possible in this way to determine the amount of degeneration present and to check any increase or decrease in the degenerative process. The elevation of muscle chronaxy is significant of lower motor neuron pathology. Damage above the lower motor neuron produces no elevation of chronaxy nor does direct muscle damage. Elevated values may be expected in cases of poliomyelitis, spinal

---

Chairman's address, read before the Section on Physical Medicine and Rehabilitation at the 104th Annual Meeting of the American Medical Association, Atlantic City, June 8, 1955.

atrophy, amyotrophic lateral sclerosis or acute ascending myelitis (Landry's paralysis), spinal cord tumors, pressure from disk lesions, laceration of nerve, or toxic neuritis. Disseminated chronaxy changes are present in cases of multiple sclerosis or syringomyelia.

OTHER TESTS

A number of other diagnostic tests are being used, and their importance and reliability will be definitely determined by further clinical experience.

The strength duration curve is obtained by plotting the current required to produce the same degree of contraction as was observed in the determination of the rheobase against a series of decreasing stimulus durations. When normal it should show a continuous flat slope (during degeneration there is a discontinuous steep slope). When denervated there is a continuous steep slope that on regeneration becomes discontinuous again. Chronaxy will be a point of reference on the strength duration curve. This test has its value as a prognostic sign.

The galvanic tetanus ratio is defined as the quotient obtained by dividing the value of galvanic current required to produce a tetanus by the value of current required to produce a minimal contraction (rheobase). A normal muscle requires three to six times as much current to produce tetanus as the rheobase. A degenerating muscle shows a gradual approach to unity. A completely degenerated muscle shows a ratio of 1 to 1.5. As the muscle regenerates it shows a ratio of 10 or more and is a good indication of regeneration. The galvanic tetanus ration must always be considered in relation to the time interval between the injury and the examination.

Another test that is being used is repetitive stimuli or strength interval curve. A tetanic contraction of a muscle is produced by a series of direct current stimuli having short duration separated by short intervals. The short stimuli is not effective of itself but produces a state of hyperexcitability and when rapidly repeated leads to contraction of the muscle. This is most effective in normal muscles but rapidly diminishes when the interval is increased. If the muscle is denervated, the strength of the stimulation must increase markedly. The curve ascends during nerve degeneration and flattens out during regeneration, rendering important prognostic information.

The following findings have been suggested in neuromuscular examination: evidence of degeneration shown by (1) galvanic tetanus ratio near 1.00, (2) repetitive stimuli requiring progressively greater amounts of current as the interval between stimuli is increased, (3) chronaxy above 15 milliseconds, (4) strength duration curve steep and continuous in the region of long duration, and (5) rheobase ratio of 1.0 or less; evidence of regeneration shown by (1) galvanic tetanus ratio greater than 1.5, (2) repetitive stimuli requiring only slight increase in amount of current, (3) chronaxy below 15 milliseconds, (4) strength duration curve discontinuities, and (5) rheobase ratio of 1 to 3; and normal muscle shown by (1) galvanic tetanus ratio 3.5 to 6.00, (2) repetitive stimuli requiring about the same amount of current for 1, 5, or 10 milliseconds, (3) chronaxy below 1 millisecond, (4) strength duration curve continuous, and (5) rheobase ratio of 1.5 to 3.00.

DIAGNOSIS OF NEUROMUSCULAR DISEASES

Further studies in the diagnosis of neuromuscular diseases have resulted in the perfection of the electromyograph and the establishment of fibrillation as an objective clinical finding. The electrical recording of fibrillation of degeneration action potentials is now accepted as a definite adjunct to clinical medicine. The electromyograph picks up and amplifies electrical voltages in a muscle and reproduces them on an oscilloscope, renders them audible through a loud speaker, and then records them on a tape recorder. The visible patterns can be photographed on the oscilloscope. The electromyograph should be operated in a fully screened room to exclude extraneous wave lengths. Skin electrodes were used at first, but today the needle electrode is much more accurate. These needles are insulated except for the tip and are inserted into the muscle to be examined. The relaxed normal muscle is electrically silent and develops no voltages that can be recorded. On contraction of a normal muscle, normal motor unit voltages are elicited. This represents the contraction of a functional unit consisting of one anterior horn cell, its axon, and 100 to 150 muscle fibers that it enervates. This contraction is synchronous and can easily be recognized by its sound and appearance. When a voluntary muscle is denervated for a period of time, invisible rhythmic twitching of the muscle occurs, and so-called denervation fibrillation voltages appear on the electromyograph. These denervation fibrillation voltages are important, as they are significant of peripheral nerve injury and disappear when the nerve regenerates. They also disappear when the muscle is fibrosed. They are the most important findings shown by the electromyograph.

Polyphasic motor unit voltages occur during degeneration and during regeneration and represent the asynchronous contraction of abnormal muscles and are of prognostic importance in the regenerating stage. Fasciculation voltage is the visible involuntary contraction of a simple motor unit and has a characteristic sound and appearance. When the contractions appear alone they have no clinical application as they are recorded from normal muscles at times.

In patients with myotonia there are outbursts of motor voltages that sound like a diving airplane and are quite characteristic, making the diagnosis quite simple. The electromyograph is a fairly accurate clinical procedure when used by one who has the experience to properly evaluate the various voltages. It is particularly valuable in all cases of lower motor involvement and will aid in the diagnosis of many general conditions where lower motor pathology is present. It is of aid in localizing cases of spinal root compression, poliomyelitis, multiple sclerosis, tabes dorsalis, scalenus anticus syndrome, cervical rib, and many other conditions in which the peripheral nerve is involved.

The physiatrist has at his command a number of tests that are of extreme clinical value from both the diagnostic and prognostic view. In view of the frequency of peripheral nerve injuries in war and peace and of the many generalized conditions in which peripheral nerves are involved, these clinical examinations must be of ever-increasing importance in the practice of physical medicine and rehabilitation.

The diagnosis of hysterical paralysis is frequently a dangerous procedure and one that should only be made after a careful examination utilizing all the tests to disprove it. There is no way a hysterical patient can deceive these various electrical tests, particularly the electromyograph. Too many cord tumors have been thus misjudged until the pathology was irreversible and permanent damage had been done. A similar situation occurs with malingering cases, particularly in industrial accidents where the patient is making unwarranted claims of permanent injury. Insurance companies find that an early neuromuscular study will frequently save them much in damage claims. Malpractice suits can be successfully defended when definite evidence of the lack of neuromuscular damage can be presented. Neuropathies frequently present great difficulty in diagnosis, and definite evidence, such as can be obtained by these various tests, is of great aid in establishing an early diagnosis and instituting early and correct therapy.

Localization of disk lesion by the electromyograph is assuming more importance and as experience increases much dependence will be placed on the evidence presented. The myelogram is not the most accurate test in such cases, and where two disks are involved it frequently results in additional operation procedures. Persistent neck and shoulder pain is now being shown to be due in many cases to nerve root pressure from exostosis in patients with cervical arthritis and explains the difficulty in relieving many of the patients. Pains and weakness, resulting from toxic neuritis due to lead or arsenic, if discovered early, will have an important bearing on the prognosis.

Muscular dystrophies present a group of conditions in which the diagnosis is complex and difficult. Progressive muscular atrophy if neural in origin will show a proportionately diminished number of action potentials depending on the degree of atrophy and the presence of fibrillation. If the condition is due to a slowly advancing degenerative disease of the muscle, the motor neuron is unaffected and the result will be a diminishing of the number and size of the motor units but no fibrillation will be found. The electromyograph is a welcome help in solving the problem of muscle weakness.

COMMENT

Neuromuscular conditions are numerous and common but are frequently attended with difficulty in diagnosis so that any help is greatly appreciated. The tests we have available are capable of giving us this aid. When understood and generally used they will be of inestimable help in the early diagnosis and proper treatment of these conditions. Every hospital has need of this service, and the physical medicine department should be prepared to meet the need and thus greatly extend its usefulness as an important branch of the practice of medicine.

136 S. 16th St.

TAMPON METHOD FOR MASS SCREENING TO DETECT CARCINOMA OF CERVIX UTERI

Madeline J. Thornton, M.D., Madison, Wis.

In November, 1954, Dr. Alexander Brunschwig[1] described the trial of a method for cytological detection of carcinoma of the uterine cervix by the use of a specially designed vaginal tampon. The concept of such a mass screening for early cancer detection originated with Dr. Andre Draghi, who designed a special vaginal tampon to implement that technique. This tampon consists of a tightly compressed cylinder of cotton partially encased in a sheath of nylon (see figure). A group of 227 patients were studied by this screening method by Dr. Brunschwig. He concluded from this study that the method appeared to be feasible but felt that the evaluation of the method must await an actual large-scale trial.

The cytological evaluation of the smears made from the 227 patients studied by Dr. Brunschwig was done by Dr. George N. Papanicolaou.[2] Dr. Papanicolaou felt that the analyzed results of the tampon smears compared favorably with the results obtained by the examination of smears prepared by the standard aspiration technique. He felt that, although the tampon method does not provide as adequate material for cytological study as a set of vaginal and endocervical smears, nevertheless, it had certain advantages, such as a greater purity of smear, that aided markedly in the screening as well, in addition to presenting a smear that contained fresher cells and was relatively free of decaying cells, bacteria, and detritus. He concluded that the Draghi detection tampon appeared suitable for mass screening purposes but that for final diagnosis we must still depend upon thorough gynecologic examination and biopsy.

On the basis of the studies carried out by Drs. Brunschwig and Papanicolaou, it seemed advisable that further studies be done on a larger number of patients to evaluate this method for mass screening of large groups of the female population for the early detection of carcinoma of the uterine cervix. Accordingly, at the request of Dr. Draghi, such a study was started on Feb. 7, 1955, at University Hospitals, Madison, Wis. During the period of time from Feb. 7, 1955, until Sept. 1,

---

From the Department of Obstetrics and Gynecology, University Hospitals, University of Wisconsin Medical School.

The Draghi detection tampons used in this study were supplied by Tampax, Inc., Palmer, Mass.

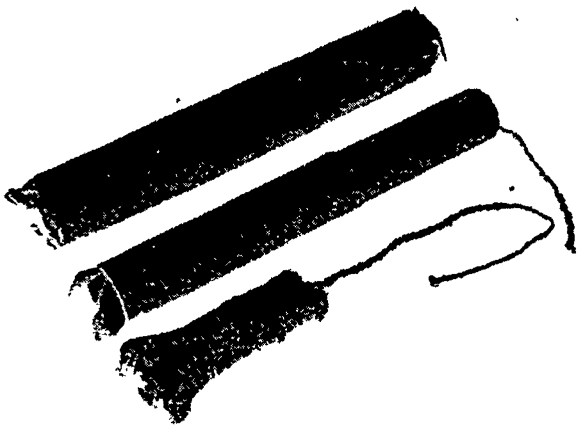
[1] Brunschwig, A.: A Method for Mass Screening for Cytological Detection of Carcinoma of the Cervix Uteri, Cancer 7: 1182-1184 (Nov.) 1954.

[2] Papanicolaou, G. N.: Cytological Evaluation of Smears Prepared by the Tampon Method for the Detection of Carcinoma of the Uterine Cervix, Cancer 7: 1185-1190 (Nov.) 1954.

1955, 2,059 patients have been screened by the use of the Draghi detection tampon for the cytological detection of carcinoma of the cervix uteri. A detailed account of the program as it developed and an analysis of the results of the study follows.

TECHNIQUE

At the onset of the study, during the first weeks, the patients screened by this method were (1) clinic and private patients seen in the outpatient gynecologic clinic; (2) patients seen in the gynecologic clinic in consultation for the other services of the hospital, including hospitalized patients as well as outpatients; and (3) gynecologic tumor clinic patients, most of whom had received some type of radiation therapy or had had extensive major surgery for a known malignant neoplasm in the pelvis, cervix, uterus, or ovaries. At the time that these patients reported to the clinic, each one was given a detection tampon to insert into the vagina. Prior to doing a bimanual pelvic examination on these patients, the tampon was removed from the vagina by the examiner and the smear made by stamping the tampon on the slide, rotating it on the slide, and rubbing the side of the tampon on the slide. The slide was then placed immediately into the fixative solution. In this group of patients, the length of time that the tampon remained in the vagina varied from 10 minutes to one hour.



Draghi detection tampon.

Until some experience had been gained in the use of the method and some evaluation of the smears had been made, it was decided to take a routine suction-type of smear as well as a tampon smear on each patient. The two smears were compared by the cytologists, who reported that the tampon smear was a satisfactory smear after a double check had been done on 154 patients. After this approval from the laboratory, with few exceptions, the tampon smear was the only smear taken on all other patients included in this study. As Drs. Brunschwig and Papanicolaou had pointed out that the smear obtained from the tampon was superior if the tampon had remained in the vagina overnight, this study was expanded on Feb. 15, 1955, to include all inpatients admitted to the gynecologic ward of the hospital. Further expansion was carried out when, on March 25, 1955, all admissions to the women's surgical ward were included, and, on May 5, 1955, all admissions to the two women's medical wards were included.

The instructions placed on each ward for the use of the detection tampons were as follows: 1. No vaginal examination is to be done on the patient prior to the insertion of the tampon. Make certain that the patient has not had a vaginal douche in the 24 hours preceding the insertion of the tampon. 2. On the night of the day of admission of the patient to the hospital, the patient is to insert the tampon into the vagina. No lubricant is to be used. 3. The tampon is to remain in the vagina until the next morning. 4. The patient is to remove the tampon the next morning in the presence of a nurse, who will make a smear on the Papanicolaou slide immediately and then will place the slide into the bottle of fixative solution immediately. 5. All Papanicolaou laboratory slips on these patients must have the following information on them: (*a*) name of patient and her age, (*b*) history number, (*c*) date on which smear was obtained, (*d*) ward on which patient resides, (*e*) any pelvic symptoms, (*f*) if known carcinoma of the cervix is present or patient has had any pelvic irradiation, so state on the slip. 6. Instructions for making smear: Exert digital pressure on the tampon with thumb and forefinger and stamp tampon on the slide, making a slight clockwise rotation of the tampon on the slide as the smear is made. In addition, rub the sides of the tampon on the slide. Place the letter T on the identification tab on the slide so that the laboratory will know that the smear was made by the use of a tampon.

A nurse on duty on the ward during the hours of 7 to 11 p. m. was assigned to the duty of assuring that each patient inserted the tampon into the vagina. Another nurse made rounds on these patients the following morning and made the smear from the tampon given to her by the patient. Data, as follows, were recorded by the nurse on the data sheets kept on the ward: (1) history number, (2) name of the patient, (3) age of patient, (4) any pelvic symptomatology, and (5) date on which the smear was made. All reports were received from the cytological laboratory, where the laboratory number of the slide and the cytologist's report were recorded on the data sheet.

Some problems were encountered in the use of the tampon by the patients. Many of the patients in the older age group were not familiar with the use of vaginal tampons; therefore, it was necessary for the nurse or attendant to instruct the patient as to how to insert the tampon into the vagina. In a few of the patients in the younger age group, the size of the tampon seemed to account for some difficulty of insertion into the vagina. At my request, a medium size and a junior size tampon with the nylon cover were made to overcome this difficulty. The smears made with the smaller size of the tampon were satisfactory; however, it was felt that when the larger size could be used it was to be preferred, as a greater amount of secretion would be available for the smear. A few of the patients in the postmenopausal era experienced some difficulty in inserting the tampon because of the dryness of the vagina. It was in this group of patients that the tampon proved of particular value, however, as no material for a smear could be obtained by the suction method.

As the program has continued there has been less difficulty as far as knowledge of the use of the tampon is concerned. This has been noted especially in that group of patients who report to the tumor clinic for examination every two months. In the interval of time during which this study has been carried out, most of these patients have had three Papanicolaou smears made by the method with use of the Draghi detection tampon. Since the first visit to the clinic, when the tampon method was used, they have become familiar with the use of the tampon and do not need further instructions at subsequent visits.

RESULTS

The cytologists reported all smears according to the following categories: 1. No malignant cells are noted. 2. Atypical cells present suspicions of malignant cells, recommend further study. 3. Malignant cells present. 4. Quantity insufficient to be of diagnostic value.

From the onset of the study on Feb. 7, 1955, to its completion on Aug. 31, 1955, a total of 2,059 patients were screened for the cytological detection of carcinoma of the cervix uteri by the use of the Draghi detection tampon. Of these patients, 1,301 had the tampon left in the vagina for a relatively short period of time, i. e., 10 to 45 minutes. Seven hundred fifty-eight patients had the tampon left in the vagina overnight.

Comparison of Pathological Diagnosis and Cytological Report

Group	No. of Patients	Negative Smear Negative Biopsy		Positive Smear Positive Biopsy		Agreement		Negative Smear Positive Biopsy		Suspicious Smear Negative Biopsy		Unsatisfactory Smear Negative Biopsy		Positive Smear Indeterminate Biopsy		Nonagreement	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Tampon in overnight............	62	51	82.25	3	4.84	54	87.09	6	9.67	1	1.61	1	1.61	..	....	8	12.9
Tampon in short time...........	85	74	87.06	5	5.88	79	92.94	5	5.88	..	....	..	...	1	1.18	6	7.06
Total........................	147	125		8		133	90.5	11	7.48	1	0.68	1	0.68	1	0.68	14	9.5

In the entire group of 2,059 patients, 25 (or 1.2%) had smears reported "malignant cells present," 6 (or 0.3%) had smears reported as suspicious, 28 (or 1.36%) had smears reported "unsatisfactory, insufficient material on slide for diagnostic purposes," and 28 (or 1.36%) had smears reported "Trichomonas present." Of the 25 patients who had a positive smear reported, 9 had known cases of carcinoma of the cervix and were being seen in the gynecologic tumor clinic; 2 had adenocarcinoma of the fundus uteri confirmed by a diagnostic curettage; 12 had squamous cell carcinoma of the cervix confirmed by a cervical biopsy; one had a known primary carcinoma of the vagina confirmed by a previous biopsy of the vaginal mucosa; and one had a known squamous cell carcinoma of the cervix, grade 4, previously treated with x-ray and radium. In the last-mentioned patient a biopsy of a suspicious recurrent lesion of the cervix was reported by the pathologist as "indeterminate." In the six patients on whom the tampon smear was reported as suspicious, although further study by biopsy was advised, to date this has been done in one instance only. In the one patient on whom biopsy was done, the biopsy report was negative. One of the other five patients had a known case of squamous cell carcinoma of the cervix and had received a full complement of radiation therapy. Further study by biopsy has been advised on the other four patients, and it is expected that this will be done in the near future.

It is customary in the University Hospitals for the staff of the gynecologic service to examine many patients in consultation for the other services in the hospital. If pelvic pathology is found, proper therapy is recommended. The therapy recommended may be carried out in this hospital or, if the patient has been admitted for diagnosis only, the therapy may be carried out by the referring physician in some other community in the state. During the interval of time over which this study was made, 147 (or 7.1%) of the 2,059 patients had a dilation and curettage and/or biopsy of the cervix done because of the presence of pelvic pathology. While this may appear to be a low incidence of biopsy, it must be remembered that the total number, 2,059, of patients were screened as a routine procedure on the medical and surgical and gynecologic wards and that the great majority of the patients admitted to the medical and surgical wards did not have pelvic examinations done by the staff of the gynecologic service.

A comparison of the pathological diagnosis of the tissue obtained by biopsy with the cytological report of the tampon smear on these 147 patients yielded the information as shown in the table. In 133 of the 147 patients the results of the biopsy confirmed the cytological report of the smear. One patient had a suspicious smear and a negative biopsy, one patient had a smear that was reported as unsatisfactory and a negative biopsy, and one patient had a positive smear and a biopsy that was reported as indeterminate. Eleven patients had a negative smear reported by the cytologist and a positive biopsy reported by the pathologist. Therefore, the cytological report on the detection tampon smear agreed with the biopsy in 90.5% in this group of 147 patients and failed to agree in 9.5%. While it was not possible to determine why it was that 11 patients, 7.48% of the 147 patients, had negative smears with a positive biopsy, the following brief analysis of these cases may present some pertinent facts.

REPORT OF CASES

Case 1.—On two occasions a suction smear and a tampon smear were reported as negative for malignant cells. Diagnostic curettage revealed the presence of adenocarcinoma of the fundus uteri of low-grade malignancy.

Case 2.—Suction smear reported as showing presence of malignant cells; tampon smear reported as no malignant cells noted. This patient had a primary carcinoma of the bladder.

On biopsy a lesion on the vaginal wall was diagnosed as papillary adenocarcinoma arising in the bladder.

Case 3.—Suction and tampon smears were reported negative for malignant cells. On curettings a diagnosis of adenocarcinoma of the fundus uteri was made.

Case 4.—Suction smear taken by intern at time of admission examination was reported as showing malignant cells present. Three tampon smears taken subsequent to this were reported as negative. On biopsy of the cervix a diagnosis of carcinoma in situ of the cervix was made.

Case 5.—The referring physician reported two positive suction Papanicolaou smears followed by two negative cervical biopsies on this patient prior to her admission to the hospital. On May 2, 1955, on circumferential cervical biopsy a diagnosis of carcinoma in situ was made. Tampon smear on May 3, 1955, was reported as negative. Total hysterectomy was done on May 9, 1955, and carcinoma in situ in the cervix uteri was reported.

Case 6.—The referring physician reported squamous cell carcinoma of the cervix diagnosed by biopsy of the cervix done by him 13 days prior to the admission of the patient to this hospital on May 9, 1955. A tampon smear on May 10, 1955, was reported as showing no malignant cells. On biopsy of the cervix on May 10, 1955, a diagnosis of squamous cell carcinoma of the cervix, grade 4, was made. On pelvic examination the lesion was diagnosed as squamous cell carcinoma of cervix uteri, stage 3. As this patient was a schizophrenic and difficult to control, further tampon smears were not attempted.

Case 7.—On April 27, 1955, two weeks prior to the admission of this patient to the hospital a biopsy and cauterization of the cervix and the implantation of 2,400 mg.-hr. of radium into the cervix had been done by the referring physician. Tampon smear on May 11, 1955, was reported as negative. On biopsy of the cervix on May 12, 1955, a diagnosis of squamous cell carcinoma of the cervix uteri, grade 2, was made.

Case 8.—This patient had had a biopsy and cauterization of the cervix done three days prior to her admission to the hospital and entered with a diagnosis of squamous cell carcinoma of the cervix. Tampon smear made on the morning following the day of admission was reported as no malignant cells noted. On biopsy of the cervix done on the same day, a diagnosis of "clusters of neoplastic epithelial cells in depth of tissue—squamous cell carcinoma, grade 3," was made. Subsequent tampon smears done 5 and 10 days later, respectively, while the patient was receiving deep x-ray therapy were reported as negative for malignant cells.

Case 9.—Pelvic examination on a 71-year-old woman who denied any pelvic symptoms showed a small polyp present in the cervix and some hyperplasia of the epithelium in the cervical canal. Tampon smear was reported negative, but a spatula smear of cells scraped from the cervical canal showed malignant cells present. On biopsy of the cervix with removal of the polyp a diagnosis of benign cervical polyp, carcinoma in situ of cervix uteri, was made.

Case 10.—A patient had a known squamous cell carcinoma of the cervix, which had been diagnosed and treated by x-ray and radium elsewhere three years prior to her admission to the hospital. Tampon smear was negative. Biopsy of the cervix showed carcinoma still present.

Case 11.—This patient was admitted on Feb. 28, 1955, with a known diagnosis of squamous cell carcinoma of the cervix, which had been treated elsewhere with 6,100 mg.-hr. of radium. Tampon smear done on the morning of March 1, 1955, was reported as negative. Pelvic examination done later that same morning showed the upper portion of the vaginal vault occluded by an adhesive vaginitis with some nodular tissue palpable through the adhesions. The pathologists report on this patient was as follows. On review of slides of April 22, 1953 (obtained from hospital where patient received radium therapy) a diagnosis of squamous cell carcinoma, grade 3, was made. On vaginal biopsy, done on March 2, 1955, the sections showed a heavy layer of fibrous superficially crusted granulation tissue. There were many inflammatory cells. Several small aggregations of epithelial cells were found in the granulation tissue (perhaps entrapped normal epithelial cells). Further tissue study was recommended.

The one patient who had a positive smear with the biopsy reported as indeterminate had a known case of carcinoma of the cervix with distant metastases, had received radiation therapy elsewhere, and had entered this hospital for biopsy of a suspicious lesion on the cervix. The pathologist reported that the tissue received was inadequate for diagnosis.

SUMMARY AND CONCLUSIONS

A group of 2,059 patients were screened for the cytological detection of carcinoma of the cervix uteri by means of the Draghi detection tampon. Of these, 758 patients had the tampon left in the vagina overnight, while 1,301 patients had the tampon in the vagina for a shorter period of time (10 to 45 minutes). Some problems were encountered due to lack of knowledge on the part of the patients in the use of the tampon. It has become apparent, however, in those patients who are returning now for their regular six month pelvic examination and in those patients who have reported for examination in the tumor clinic every two months, that, after instructions were given the first time the detection tampon was used, it was not necessary to repeat the instructions. In the 147 patients screened by the use of the detection tampon who had dilation and curettage and/or biopsy of the cervix, there was correlation of the biopsy and the cytology in 90.5%. There was a discrepancy between the biopsy and the cytology in 9.5%, with negative cytology and a positive biopsy in 7.48%.

It would appear, from the above, that the use of the Draghi detection tampon is a satisfactory method for obtaining smears for the mass screening of patients for the cytological detection of carcinoma of the cervix uteri. In view of the fact that, in 7.48% of those patients in whom it was possible to compare the smear and a biopsy, there was a negative smear and a positive biopsy, it would seem advisable that several smears at relatively frequent intervals on the same individual might reduce this figure. The final diagnosis, however, must depend upon a thorough gynecologic examination and biopsy.

Sheep Cell Agglutinins.—The sheep cell agglutinins, or heterophile antibodies, which appear at some time in the course of most cases of infectious mononucleosis can be differentiated from the heterophile antibodies present in most normal sera by their failure to be absorbed out with guinea pig kidney. Since the latter is rich in Forssman antigen, it will remove the normal sheep cell agglutinin and leave the mononucleosis heterophile antibody. This absorption technique is useful in determining the significance of titers at the upper limit of normal in suspected cases. The upper limit of normal with unabsorbed sera with the usual techniques is in the neighborhood of 1:64-1:128. Here again, a definite augmentation of sheep cell titer during convalescence from clinical illness has far greater significance than a single determination. The differential sheep cell agglutination test is based on the observation that agglutination of sheep cells by anti-sheep-cell-rabbit serum, a simple antigen-antibody reaction, is greatly enhanced by a factor occurring in about 75 per cent of the patients with peripheral rheumatoid arthritis. Significant sensitized sheep cell titers are rarely encountered in any condition other than rheumatoid arthritis. There seems to be no close correlation with severity of rheumatoid arthritis and the titer is apparently unaffected by any form of therapy, including cortisone and ACTH. The exact nature of the agglutinating factor is still unsettled.—C. Howe, Evaluation of Diagnostic Tests in Infection, *Bulletin of The New York Academy of Medicine*, October, 1955.

LARGE DOSES OF ATROPINE

LOW TOXICITY AND EFFECTIVENESS IN ANTICHOLINESTERASE INTOXICATION

Archer S. Gordon, M.D., Ph.D.
and
Charles W. Frye, M.S., Chicago

The medical importance of anticholinesterase agents has become increasingly apparent in recent years, and organic phosphate compounds have been widely publicized as "G agents" or "nerve gases." Their potential use as chemical warfare agents against military or civilian populations makes it important that the medical profession become better acquainted with the diagnosis and treatment of anticholinesterase intoxication.[1] The organic phosphates are also among the most powerful and versatile insecticides developed to date, and extensive agricultural use has resulted in many accidental exposures and deaths. Cases of poisoning have occurred in workers and in adult and children nonworkers who have come into contact with these substances. Most cases reported in the literature have been due to ignorance or improper handling of the insecticide. The substantial number of severe cases brings organic phosphate poisoning into the province of all practitioners.

TREATMENT OF ANTICHOLINESTERASE POISONING

At the present time the best known treatment for organic phosphate poisoning consists of: (1) atropine sulfate to control the muscarinic and central nervous system effects; (2) artificial respiration to treat the respiratory failure; and (3) general supportive therapy for other symptoms. The therapeutic importance of atropine has been emphasized by controlled studies [2] and clinical experiences.[3] The recommended initial and maintenance doses appear massive when compared with the usual therapeutic dose of 0.4 to 0.6 mg. (1/150 to 1/100 grain).

Grob [4] has reported that in the presence of anticholinesterase agents, patients have a markedly increased tolerance for atropine. Military recommendations [5] are that, in cases of mild or moderate symptoms of poisoning, 2 mg. of atropine sulfate (1/30 grain) should be injected intramuscularly. However, this dose of atropine may be inadequate where massive exposures have occurred. If severe symptoms of organic phosphate poisoning are present, 4 to 6 mg. of atropine (1/15 to 1/10 grain) should be injected intravenously or, if this is not feasible, intramuscularly. Similar dosage recommendations are made if severe respiratory distress or convulsions constitute a portion of the clinical syndrome. After the initial dose, 2 mg. should be administered at hourly intervals, or oftener until signs of atropinization appear or as long as muscarinic effects are present.[6] Most investigators make similar recommendations.[7] A survey of 149 cases of organic phosphate poisoning reported in the English literature, including 15 deaths, reveals that even larger amounts of atropine than were administered would have been beneficial. Although symptoms were well reported,[8] sufficient data for analysis of atropine therapy have been presented in only 25 of these cases, in 9 of which the patients died. These data are summarized in table 1. (One hundred ninety-eight cases reported by Abrams [3b] do not present sufficient data on symptoms or atropine therapy to be included in this analysis.)

In reviewing this material, several considerations must be kept in mind. First, the cases cannot be compared with respect to degree of poisoning. No attempt has been made to separate cases on this basis, since the presentations are not complete enough to assay the severity of exposure. Secondly, the response to atropine therapy cannot be compared in all cases, since the exact times and amounts of injections have been incompletely detailed. Despite these limitations, several important differences are noted between the surviving and nonsurviving groups as regards atropine therapy. Table 1 reveals that the survivors received their initial atropine slightly later (141 minutes) than the nonsurvivors (113 minutes). However, exclusion of two patients with atypical cases (5 and 17), one of whom received his atropine within 7 minutes and the other at the end of 16 hours, makes the groups more homogeneous; the time of first atropine injection then becomes 82 minutes for survivors and 126 minutes for nonsurvivors.

The mean initial dose given each group was essentially the same. Analysis of individual cases reveals that only 3 of the 25 patients received an initial dose of at least 2 mg. These three were in the group of survivors. At the end of five hours of treatment, 7 of the 16 survivors (or 44%) had received 2 mg. or more of atropine, whereas, of the 7 nonsurvivors still alive at this time, only one (or 14%) had received this amount of the drug. Comparison of therapy beyond this point is impossible, since all of the nonsurvivors had died within 10 hours except two, one of whom lived 12 hours and the other 13.5 hours. The most important observation here is that in most instances neither the survivors nor the nonsurvivors were considered severely enough poisoned to require the recommended initial or maintenance dose of 2 mg. of atropine. Recent studies and experiences,[5] as well as this survey, further stress the necessity for speed and this large initial and maintenance dose. The survivors usually received their atropine sooner, and received more of it during the first few hours, but survival in some of these cases may have been due to less severe exposure.

The small doses of atropine usually administered indicate that: (1) initial intoxication was not considered severe enough to warrant large doses of the drug; or (2)

From the Department of Clinical Science, College of Medicine, University of Illinois.

These studies were supported by a grant from the Army Chemical Center Medical Laboratories, Edgewood, Md.

Because of space limitations the bibliographic references have been omitted from THE JOURNAL and will appear in the authors' reprints.

toxic effects were feared from large doses of atropine. This latter factor is probably important because of the clinical habit of administering smaller doses. Accordingly, we have reviewed the literature on atropine in order to assay the toxicity of this drug, especially in large doses.

REVIEW OF LITERATURE ON ATROPINE INTOXICATION

The minimal lethal dose of atropine has been reported as 10 to 20 mg. in children and 80 to 130 mg. in adults.[9] Thus there is a wide margin of safety between effective and lethal dose. In adults who are sensitive to the drug, 5 to 10 mg. may produce a rather severe intoxication, with a rapid heart rate, dry mouth, pupillary dilatation, and central effects such as restlessness, confusion, and even mania.[9c] Since the middle of the 19th century, many cases of ingestion of large doses of atropine and atropine poisoning have been reported. These two are not synonymous, since cases of poisoning occur with relatively small doses and must represent a sensitivity to the drug.[9b] Recent studies in this laboratory indicate that atropine-induced orthostatic hypotension may serve as a useful measure of such individual sensitivity.[10]

Cases of atropine intoxication fall into three general categories: Those resulting from (1) large doses given for experimental purposes; (2) large doses given for specific therapeutic reasons; and (3) large doses not administered for experimental or therapeutic purposes, such as suicidal attempts, hypersensitivity, and accidental ingestion. The use of atropine for experimental purposes is usually limited to doses of 1 to 10 mg. In this laboratory, over 400 normal adult male students and military personnel have been given intramuscular injections of 2 mg. of atropine sulfate without any serious effects.[10] The most common symptoms were found to be dryness of the mouth, lips, and throat; tiredness; dizziness; headache; and tachycardia. Visual disturbances, flushing, and dysuria were also noted, but none of the symptoms were incapacitating, and all of the subjects returned to routine work at the completion of the tests. Robinson [11] has reported extensive studies on normal student and military volunteers with use of up to 3 mg. of atropine. No serious effects were noted other than tachycardia and limitation of work at warm temperatures because of impaired heat regulation. Other articles in the literature that report the experimental use of atropine [12] reveal over 250 persons who have participated, with no deaths or serious effects.

TABLE 1.—*Summary of Atropine Treatment for Anticholinesterase Poisoning* *

				Atropine Therapy †											
				Initial Dose											
						Cumulative Dose, Mg. (Hr. After Onset of Symptoms)									
Case No.	Age, Yr.	Sex	Onset of Symptoms After Known Exposure or Last Possible Exposure	Mg.	Minutes After Onset of Symptoms	1	2	3	4	5	10	21	Total Dose, Mg.	Time of Death After Onset of Symptoms, Min.‡	Reference
1	Adult	F	Immediate	0.65	30	0.65	0.65	0.65	1.3	1.9	5.2	10	10		8[e]
2	Adult	M	Immediate	0.48	120	0	0	0.48	.48	0.48	1.7	3.9	4.7		8[e]
3	Adult	M	Immediate	0.65	30	0.65	0.65	1.3	2.2	2.6	3.2	3.2	3.2		8[e]
4	19	M	Immediate	0.48	90	0	0.48	0.48	0.48	0.48	0.48	0.48	0.48		8[e]
5	18	M	Immediate	0.86	960	0	0	0	0	0	0	2.0	2.5		8[e]
6	24	M	Immediate	0.65	90	0	0.65	0.65	1.3	1.3	3.2	3.7	3.7		8[e]
7	18	M	60 min.	0.65	105	0	0.65	0.65	1.3	1.3	3.2	3.7	3.7		8[e]
8§	5 mo.	M	....	1.9	60	0	1.9	1.9	2.7	2.7	3.5	6.3	13.1		8[h]
9§	2	M	60 min.	2.1	60	0	2.1	2.1	2.1	2.1	2.1	5.9	5.9		8[i]
10	50	M	....	0.48	..	....	....	....	...	...	...	6.4	6.4		8[m]
11	..	M	Immediate	0.64	150	....	....	....	...	...	...	1.3	1.3		8[m]
12	..	F	....	0.96	40	....	....	....	...	...	...	2.9	3.8		8[m]
13	46	M	345 min.	1.1	75	0	2.0	2.6	3.3	3.9	4.6	7.1	7.1		8[k]
14	24	M	90 min.	0.65	90	0	.65	1.8	2.5	3.3	3.8	4.4	17.4		8[a]
15	18	M	Immediate	0.65	30	0.65	.65	0.65	0.65	.65	.65	0.65	0.65		8[a]
16	19	M	Immediate	2.6	180	0	0	0	2.6	3.9	11.0	11.0	24.0		8[e]
Mean				0.96	141‖ 82¶										
17	16	M	Immediate	0.86	7	0.86								7	8[c]
18	35	M	30 min.	0.65	130	0	0	2.6	2.6	3.2	3.2			600	3[c]
19	Adult	M	480 min.	0.65	450	0	0	0	0	0	0.65			810	8[e]
20	Adult	M	Immediate	0.86	90	0	0.87	0.87	0.87	0.87				480	8[e]
21	26	M	Immediate	0.65	105	0	0.65	0.65	0.65	0.65				420	8[e]
22§	2	F	....	0.96	60	0	0.96	0.96	0.96	0.96	0.96			750	8[h]
23§	9 mo.	F	60 min.	1.6	40	1.6	1.6	4.8						180	8[j]
24	18	M	Immediate	0.48	120	0	0	0.48	0.96	1.4	2.7			570	8[p]
25	..	M	Immediate	0.65	15	0.65	0.65	0.65	0.65	0.65				335	8[p]
Mean				0.82	113‖ 126¶										

* Cases tabulated are only 25 in which specific dosage of atropine is reported out of 149 in literature. Parathion was the agent used in all cases except case 17, in which tetraethylpyrophosphate was used.

† Dosage reported exactly or approximately: ..., dose unknown; 0, no dose given; blank space, died.

‡ Patients in cases 1 through 16 recovered.

§ Children's dosage reported as adult equivalent on a milligram per kilogram basis.

‖ Mean of all cases.

¶ Cases 5 and 17 excluded from mean as atypical.

The actual dose of atropine taken in accidental exposures usually cannot be ascertained. Where atropine has been taken orally [13] or by hypodermic [14] the dose can be estimated, but when the atropine has been absorbed through the eyes,[15] from dressings and plasters,[16] or as a result of eating plants or animals containing the alkaloid,[17] the amount absorbed cannot be estimated. A review of 110 cases of accidental intoxication reveals only nine deaths, which are considered in detail later.

In 272 cases of multiple large doses of atropine given for therapeutic reasons, only two deaths resulted.[18] Most of these patients had Parkinsonism or mental disease. The most common signs and symptoms noted were dryness of the skin and mucous membranes, increased pulse and respiratory rate, impaired vision and dilated pupils, excitement, dizziness, and hallucinations. Hyperthemia, hypertension, flushing, confusion, ataxia, and urinary frequency were also noted occasionally. These data on multiple doses of atropine, strictly speaking, are not completely comparable to those on single large doses, since it has been shown that repeated use, such as in Parkinsonism, results in increased tolerance to the drug.[19]

This over-all survey includes almost 1,000 people who have received atropine in excess of the usual therapeutic maximum of 1 mg. Most have received 2 mg. or more, and about one-third have received more than 10 mg. One patient survived an oral dose of 1,000 mg.[13a] These cases represent a total of between 4,000 and 5,000 individual doses of atropine. Eleven persons have died, and these cases are analyzed individually in table 2. From this table it can be seen that the patients in cases 2, 4, 5, and 7 were in poor physical condition, which may have contributed to their death. In case 1, the author states he was not sure that atropine had caused the death, although no other diagnoses are offered. The patient in case 8 had 1.5 grains (90 mg.) of morphine prior to death, which was believed to be from respiratory failure.

In three other cases (7, 10, and 11) there were also contributing factors. Case 7 represents an instance of chronic belladonna poisoning over a period of six years and cannot be compared with the remainder of the cases, which represent acute poisoning. Case 10 represents a statement by Arnold that he had known death to occur in five minutes from 1/30 grain (2 mg.) of atropine given by hypodermic. The five minute time of death is far out of range of the other deaths, and it would appear that some factor other than just extreme atropine sensitivity was responsible. In case 11, the 3½-year-old child received 1.35 gm. of phenobarbital at the same time that 540 mg. of extract of belladonna was ingested. In cases 3, 6, and 9 there is no evidence of factors other than atropine contributing to death of the patients. It is interesting to note that in five of the deaths respiratory failure was involved. This raises the question of whether efficiently administered artificial respiration and oxygen therapy might have benefited these patients. Almost half of the deaths occurred following ocular administration, and over 50% were in infants and children. This emphasizes the greater sensitivity in the young and by application to the eyes.

A detailed discussion of the diagnosis and treatment of atropine poisoning is outside the realm of this paper. Diagnosis can usually be established on the basis of history, physical findings, and use of the diagnostic test of Dameshek and Feinsilver.[20] Treatment is symptomatic, although benefits have been reported from the use of physostigmine or pilocarpine.[21]

COMMENT

This survey reemphasizes the necessity for large doses of atropine in the treatment of anticholinesterase intoxication. Review of reported cases of poisoning by these chemical warfare and insecticide agents reveals a direct relationship between survival, the amount of atropine given, and the speed of administration. It also stresses the minimal hazard from the recommended dose of 2 mg., which appears large by comparison with the usual clinical dose. The consequences of inadequate treatment for anticholinesterase intoxication are grave, whereas the effects of excessive administration of atropine, although uncomfortable and occasionally temporarily incapacitating, are not serious. Accordingly, treatment should tend toward overatropinization rather than underatropinization. This becomes even more important in view of the finding that there is a marked tolerance for atropine in the presence of anticholinesterase poisoning.

Table 2.—*Summary of Atropine Deaths Reported in Literature*

Case No.	Age, Yr.	Route of Administration	Dose,* Mg.	Time of Death, Hr.	Comment	Reference
1	1	Eyes	...	12.5	Author doubtful as to cause of death	13[m]
2	1	Eyes	...	13	Sickly, delicate child, subject to convulsions; author doubtful as to the cause of death	15[l]
3	2¾	Eyes	1.6	48	....	15[c]
4	3	Eyes	18.1	20	Perforated cornea; died after surgery	9[b]
5	3	Eyes	...	15	Patent ductus arteriosus; poor physical condition	9[b]
6	9	Oral	...	48	Child ate deadly nightshade berries	17[a]
7	32	Oral	...	6 yr.	Chronic poisoning, belladonna tincture 2 drams (8 cc.) daily, 6 yr.	18[d]
8	43	Oral	198	15	Treatment included 1.5 grains (0.1 gm.) of morphine	13[h]
9	53	Hypodermic	32	115	....	11[b]
10	..	Hypodermic	2	5 min.	From old literature, questionable	14[h]
11	3½	Oral	540	33	Simultaneous ingestion of 1.35 gm. of phenobarbital	13[m]

* Adult equivalent doses are used and figured on a milligram per kilogram basis.

Atropinization must be rapidly instituted and vigorously pursued according to the schedule recommended above. The failure of appearance of signs of atropinization after a 2 mg. dose of the drug offers further presumptive evidence of intoxication by an anticholinesterase. Patients with moderately severe symptoms may require large amounts of the drug before evidences of atropinization appear. The effects of atropine are somewhat prolonged, lasting 3 to 5 hours after one or two injections and 12 to 24 hours after overatropinization. The usual signs of overatropinization include drowsiness, restlessness, slowing of motor activity; dryness of mouth and mucous membranes; dry, flushed skin; tachycardia; pupillary dilatation; and urinary retention. With larger doses these are accentuated, and there may be disorientation, hallucinations, and even maniacal behavior. Some of these may be difficult to differentiate in the presence of signs of organic phosphate poisoning. The three signs that appear most reliable in differentiating the onset of atropinization are (1) pupillary dilatation, (2) decreased or absent salivation and mucous membrane secretions, and (3) dryness of the skin.

In addition to the use of atropine, the treatment of organic phosphate poisoning includes: application of a gas mask and/or removal from the site of the vapors; immediate washing away of any liquid contamination; aspiration or drainage of excessive bronchial secretions that may be obstructing the airway; manual or mechanical artificial respiration, if necessary; oxygen, if necessary and available; ocular instillation of 2% homatropine or 0.5 to 1% atropine to counteract eye symptoms produced by the local absorption of organic phosphate agents; and anticonvulsant medication if convulsions are not controlled by atropine and are endangering the patient's life. Effects of anticholinesterase agents are prolonged, since recovery depends mainly on regeneration of cholinesterase enzyme in tissues. Treatment must be continued vigilantly until evidences of intoxication are no longer present. Severe exposure or delayed therapy may result in paralysis of respiration and death in spite of efforts to save the patient. Prompt masking and treatment significantly increase the chances of survival. If recovery occurs it will be complete, unless anoxia or convulsions were severe or prolonged enough to result in irreversible central nervous system damage.

1853 W. Polk St. (12) (Dr. Gordon).

1956 REVISIONS OF STANDARD BIRTH AND DEATH CERTIFICATES

Halbert L. Dunn, M. D., Washington, D. C.

Every one of us, no matter how small or large his impress on the world, will leave behind two permanent records. These are his birth and death certificates. Curiously enough, it is the medical profession, which finds all paper work out of character, that is largely responsible for the creation and quality of these two records. And the records, in turn, serve as a history of the impact of medicine on the lives of the people. In this country the legal authority for registration rests with the governments of the 48 states. National birth and death data become possible because a standard record form is developed by the Public Health Service in cooperation with the state registration officials and representatives of health and demographic interests. The first standard certificates were promulgated in 1900, and the sixth will be used beginning Jan. 1, 1956. Most state registration offices have adapted the standard forms to their local needs but have retained the items needed for national statistical tabulations.

The basic information collected on birth and death certificates has not changed very much in the half-century of their use. Proposals for the collection of additional information are screened rigorously in the process of the decennial revisions, and only those of broad general value survive to become part of the legal document. The changes made in the 1956 revisions were designed to keep the certificates up-to-date and the collection of information accurate rather than to introduce any real innovations.

One of the current changes is a reflection of the increased urbanity of our population. A traditional statistic compiled from birth and death certificates has been birth and death rates for the city and the rural populations. Everyone "knows" that birth rates are higher for rural residents than they are for city people and that death rates are higher for the cities than they are for the rural areas. But the vital statistician attempting to compute birth and death rates for the urban and rural populations finds himself frustrated, because it is not possible to identify positively the city dweller. The addresses of suburbanites, living outside the city limits, often carry a city postal zone number and the city name. These persons are mistaken for city residents, and consequently vital events for city residents are overstated and those for rural residents understated. As the suburban population has increased, errors of this nature have also grown. On the 1956 certificates, the method of asking for information as to the place of occurrence and of residence has been revised to ensure better specification of urban residence and to clearly separate the truly rural or farm population (fig. 1). The farm residence question is a simple one, requiring no special definitions of farm. The informant is asked to follow the common understanding of what a farm is in answering the question. While in a few marginal cases people may differ in their interpretation of the word farm, in most areas of the country no problem is expected to arise.

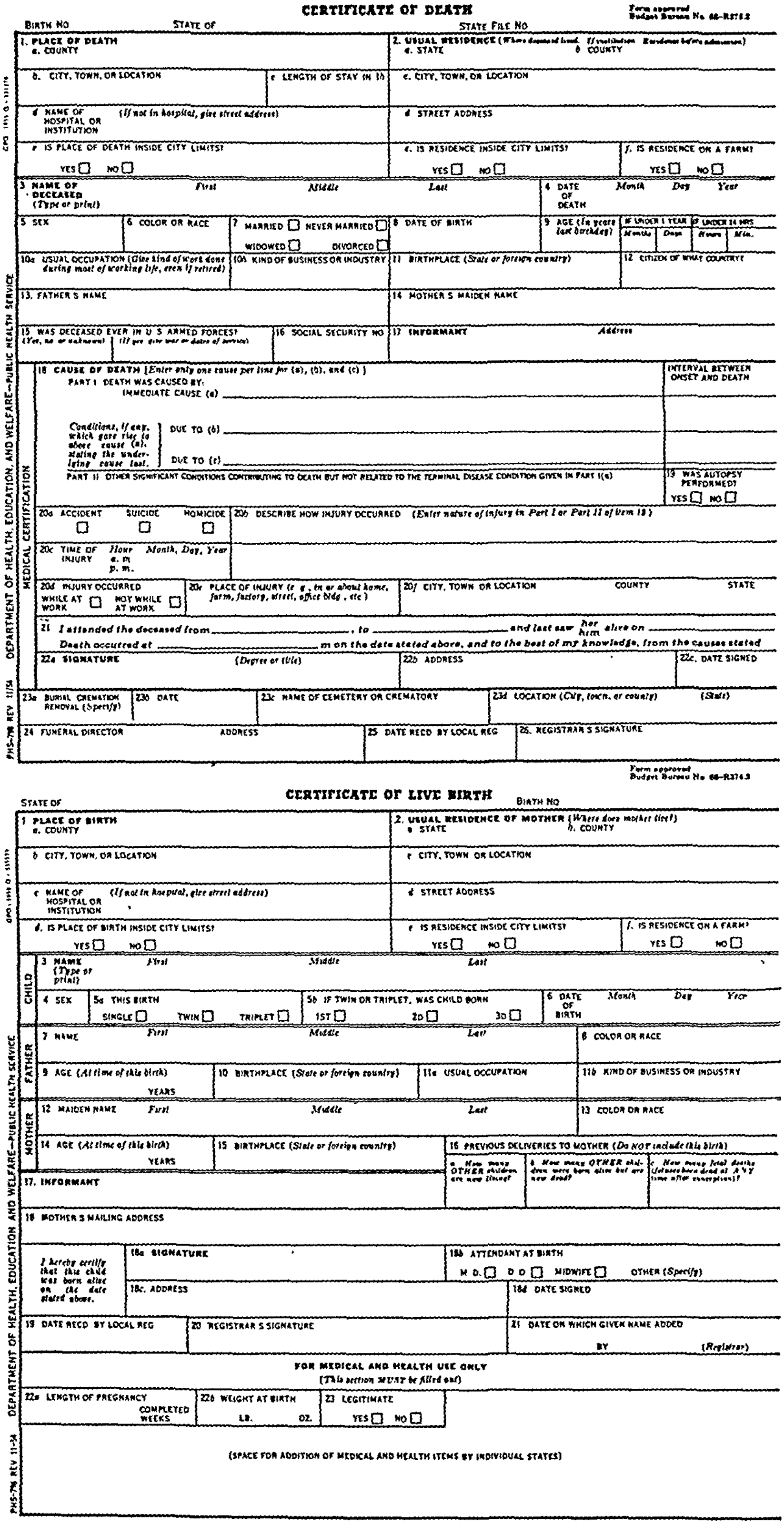
DEATH CERTIFICATE

On the death certificate the medical certification section has been revised slightly. The principle of reporting a sequence of causes that led to death, reporting the underlying cause last, is the same, but the instructions shown on the certificate have been simplified, since the medical profession is now familiar with the reporting procedure. The items requesting date of operation and major findings of operation have been deleted, because significant findings of operations are correctly reported in the cause-of-death sequence or as contributory causes. As may be seen from the certificate, the medical certification is in two parts. Part 1 relates to the sequence of events that led to death. In part 2 are to be entered any other significant conditions that unfavorably influenced the course of the morbid process and thus contributed to the death but that were not related to the disease or condition directly causing death.

On line (*a*) in part 1 is to be reported the immediate cause of death. Symptoms or modes of death, such as respiratory failure, heart failure, or collapse, are to be avoided. On lines (*b*) and (*c*) are to be reported the antecedent conditions that gave rise to the cause stated

---

Chief, National Office of Vital Statistics, Public Health Service, Department of Health, Education, and Welfare.



CERTIFICATE OF DEATH

Form approved Budget Bureau No. 68-R171.2

BIRTH NO STATE OF STATE FILE NO

1. PLACE OF DEATH a. COUNTY
2. USUAL RESIDENCE (Where deceased lived. If institution: Residence before admission) a. STATE b. COUNTY
b. CITY, TOWN, OR LOCATION
c. LENGTH OF STAY IN 1b
c. CITY, TOWN, OR LOCATION
d. NAME OF HOSPITAL OR INSTITUTION (If not in hospital, give street address)
d. STREET ADDRESS
e. IS PLACE OF DEATH INSIDE CITY LIMITS? YES ☐ NO ☐
e. IS RESIDENCE INSIDE CITY LIMITS? YES ☐ NO ☐
f. IS RESIDENCE ON A FARM? YES ☐ NO ☐
3. NAME OF DECEASED (Type or print) First Middle Last
4. DATE OF DEATH Month Day Year
5. SEX
6. COLOR OR RACE
7. MARRIED ☐ NEVER MARRIED ☐ WIDOWED ☐ DIVORCED ☐
8. DATE OF BIRTH
9. AGE (In years last birthday) IF UNDER 1 YEAR Months Days IF UNDER 24 HRS Hours Min.
10a. USUAL OCCUPATION (Give kind of work done during most of working life, even if retired)
10b. KIND OF BUSINESS OR INDUSTRY
11. BIRTHPLACE (State or foreign country)
12. CITIZEN OF WHAT COUNTRY?
13. FATHER'S NAME
14. MOTHER'S MAIDEN NAME
15. WAS DECEASED EVER IN U S ARMED FORCES? (Yes, no or unknown) (If yes, give war or dates of service)
16. SOCIAL SECURITY NO
17. INFORMANT Address

MEDICAL CERTIFICATION

18. CAUSE OF DEATH [Enter only one cause per line for (a), (b), and (c).] INTERVAL BETWEEN ONSET AND DEATH
PART I. DEATH WAS CAUSED BY:
IMMEDIATE CAUSE (a) ______
Conditions, if any, which gave rise to above cause (a), stating the underlying cause last. DUE TO (b) ______
DUE TO (c) ______
PART II. OTHER SIGNIFICANT CONDITIONS CONTRIBUTING TO DEATH BUT NOT RELATED TO THE TERMINAL DISEASE CONDITION GIVEN IN PART I(a)
19. WAS AUTOPSY PERFORMED? YES ☐ NO ☐
20a. ACCIDENT ☐ SUICIDE ☐ HOMICIDE ☐
20b. DESCRIBE HOW INJURY OCCURRED (Enter nature of injury in Part I or Part II of item 18.)
20c. TIME OF INJURY Hour a. m. p. m. Month, Day, Year
20d. INJURY OCCURRED WHILE AT WORK ☐ NOT WHILE AT WORK ☐
20e. PLACE OF INJURY (e. g., in or about home, farm, factory, street, office bldg., etc.)
20f. CITY, TOWN, OR LOCATION COUNTY STATE
21. I attended the deceased from ______, to ______ and last saw her/him alive on ______
Death occurred at ______ m on the date stated above, and to the best of my knowledge, from the causes stated
22a. SIGNATURE (Degree or title)
22b. ADDRESS
22c. DATE SIGNED
23a. BURIAL, CREMATION, REMOVAL (Specify)
23b. DATE
23c. NAME OF CEMETERY OR CREMATORY
23d. LOCATION (City, town, or county) (State)
24. FUNERAL DIRECTOR ADDRESS
25. DATE REC'D BY LOCAL REG
26. REGISTRAR'S SIGNATURE

PHS-798 REV 11/54 DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE—PUBLIC HEALTH SERVICE

Form approved Budget Bureau No 68-R374.3

CERTIFICATE OF LIVE BIRTH

STATE OF BIRTH NO

1. PLACE OF BIRTH a. COUNTY
2. USUAL RESIDENCE OF MOTHER (Where does mother live?) a. STATE b. COUNTY
b. CITY, TOWN, OR LOCATION
c. CITY, TOWN, OR LOCATION
c. NAME OF HOSPITAL OR INSTITUTION (If not in hospital, give street address)
d. STREET ADDRESS
d. IS PLACE OF BIRTH INSIDE CITY LIMITS? YES ☐ NO ☐
e. IS RESIDENCE INSIDE CITY LIMITS? YES ☐ NO ☐
f. IS RESIDENCE ON A FARM? YES ☐ NO ☐

CHILD
3. NAME (Type or print) First Middle Last
4. SEX
5a. THIS BIRTH SINGLE ☐ TWIN ☐ TRIPLET ☐
5b. IF TWIN OR TRIPLET, WAS CHILD BORN 1ST ☐ 2D ☐ 3D ☐
6. DATE OF BIRTH Month Day Year

FATHER
7. NAME First Middle Last
8. COLOR OR RACE
9. AGE (At time of this birth) YEARS
10. BIRTHPLACE (State or foreign country)
11a. USUAL OCCUPATION
11b. KIND OF BUSINESS OR INDUSTRY

MOTHER
12. MAIDEN NAME First Middle Last
13. COLOR OR RACE
14. AGE (At time of this birth) YEARS
15. BIRTHPLACE (State or foreign country)
16. PREVIOUS DELIVERIES TO MOTHER (Do NOT include this birth)
a. How many OTHER children are now living?
b. How many OTHER children were born alive but are now dead?
c. How many fetal deaths (fetuses born dead at ANY time after conception)?
17. INFORMANT
18. MOTHER'S MAILING ADDRESS
I hereby certify that this child was born alive on the date stated above.
18a. SIGNATURE
18b. ATTENDANT AT BIRTH M. D. ☐ D. O. ☐ MIDWIFE ☐ OTHER (Specify)
18c. ADDRESS
18d. DATE SIGNED
19. DATE REC'D BY LOCAL REG
20. REGISTRAR'S SIGNATURE
21. DATE ON WHICH GIVEN NAME ADDED BY (Registrar)

FOR MEDICAL AND HEALTH USE ONLY
(This section MUST be filled out)

22a. LENGTH OF PREGNANCY COMPLETED WEEKS
22b. WEIGHT AT BIRTH LB. OZ.
23. LEGITIMATE YES ☐ NO ☐

(SPACE FOR ADDITION OF MEDICAL AND HEALTH ITEMS BY INDIVIDUAL STATES)

PHS-796 REV 11-54 DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE—PUBLIC HEALTH SERVICE

Fig. 1.—Examples of the 1956 revision of standard death and birth certificates.

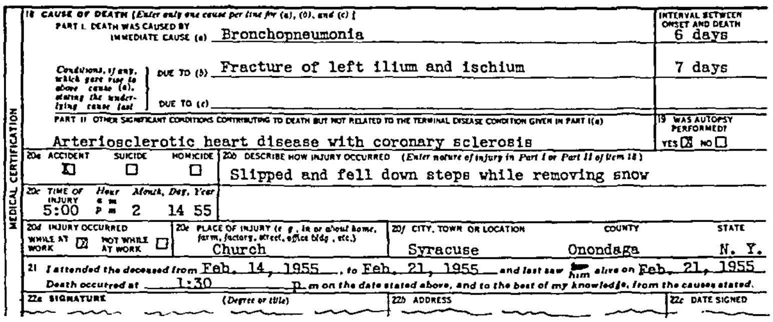
in line (*a*), the underlying cause of death being stated last in the sequence of events. The underlying cause is defined as the cause that started the chain of events that led to death. If the disease or condition directly leading to death stated in line (*a*) described completely the train of events, it is not necessary to fill in lines (*b*) and (*c*). The cause of death used for routine statistical tabulations is the underlying cause of death. In effect, the physician has been asked to certify the causes of death in such a manner that he is the person to select the cause of death for the statistical tabulations. This procedure, which has been adopted internationally at the recommendation of the World Health Assembly, has resulted in statistics that reflect medical opinion more than they did in the past.

Even though the new procedure has been in effect for seven years, it is estimated that more than 20% of the death certificates are returned with the medical certification improperly completed; that is, the cause reported last was obviously not the cause the physician intended to designate as the underlying cause of death. Rather than permit these errors to be carried into the cause-of-death statistics, the World Health Organization has suggested general rules that serve to classify the inadequate certifications as if they had been reported in correct sequence. No rule, however, can result in statistics that are as reliable as those compiled from carefully and correctly reported data by the person who is in a better position than anyone else to determine the cause of death—the attending physician. It is realized that it is not always possible to make a precise diagnosis, but even in these cases the probable diagnosis, with appropriate qualifications, reported by the physician is the best information available concerning the cause of death. A few case histories abstracted from hospital records, together with the filled out medical certification form, may serve to illustrate the proper method of reporting causes of death.

Case 1.—On Sept. 30, 1955, a 67-year-old female was admitted to the hospital with a strangulated femoral hernia that occurred three days prior to admission and that was causing abdominal pain and fecal vomitus. The second day after the hernia had become strangulated, there was perforation of the small intestine. On Oct. 1, the strangulated hernia was released and a resection of the intestine with end-to-end anastomosis was made. On Oct. 2, acute peritonitis set in, and the patient died on Oct. 13.

In this case, line (*a*), part 1, of the medical certificate would read acute peritonitis, line (*b*) perforation of small intestine, and line (*c*) strangulated femoral hernia, with interval between onset and death being 11 days for (*a*), 14 days for (*b*), and 16 days for (*c*).

CASE 2.—On Feb. 14, 1955, a 76-year-old male slipped and fell on the ice while cleaning church steps. He was admitted to the hospital, where fractures of the left ischium and ilium were reduced. Examination showed azotemia, general arteriosclerosis, arteriosclerotic heart disease, and pulmonary emphysema. He developed bronchopneumonia on Feb. 15 and died on Feb. 21. The findings at autopsy included fractured hip and pelvis, bronchopneumonia, cardiac hypertrophy, chronic fibrous myocarditis, and coronary sclerosis. An example of the manner in which the medical certificate should be filled out is given in figure 2.



MEDICAL CERTIFICATION

18 CAUSE OF DEATH (Enter only one cause per line for (a), (b), and (c).)

PART I. DEATH WAS CAUSED BY

IMMEDIATE CAUSE (a) Bronchopneumonia — INTERVAL BETWEEN ONSET AND DEATH 6 days

Conditions, if any, which gave rise to above cause (a), stating the underlying cause last

DUE TO (b) Fracture of left ilium and ischium — 7 days

DUE TO (c)

PART II OTHER SIGNIFICANT CONDITIONS CONTRIBUTING TO DEATH BUT NOT RELATED TO THE TERMINAL DISEASE CONDITION GIVEN IN PART I(a)

Arteriosclerotic heart disease with coronary sclerosis

19 WAS AUTOPSY PERFORMED? YES ☒ NO ☐

20a ACCIDENT ☒ SUICIDE ☐ HOMICIDE ☐

20b DESCRIBE HOW INJURY OCCURRED (Enter nature of injury in Part I or Part II of item 18) Slipped and fell down steps while removing snow

20c TIME OF INJURY Hour a m / p m 5:00 p m Month, Day, Year 2 14 55

20d INJURY OCCURRED WHILE AT WORK ☒ NOT WHILE AT WORK ☐

20e PLACE OF INJURY (e g , in or about home, farm, factory, street, office bldg , etc.) Church

20f CITY, TOWN OR LOCATION Syracuse COUNTY Onondaga STATE N. Y.

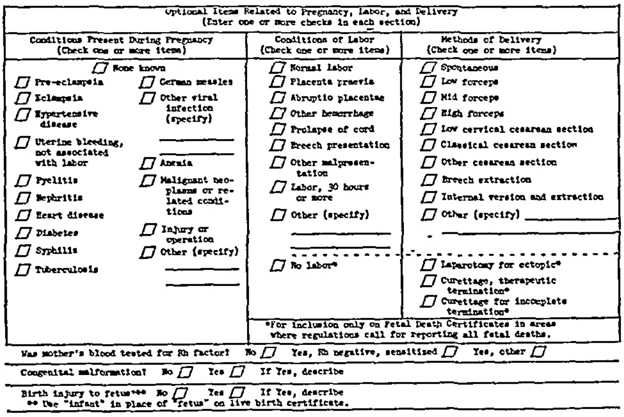
21 I attended the deceased from Feb. 14, 1955, to Feb. 21, 1955 and last saw him alive on Feb. 21, 1955

Death occurred at 1:30 p. m on the date stated above, and to the best of my knowledge, from the causes stated.

22a SIGNATURE (Degree or title) 22b ADDRESS 22c DATE SIGNED

Fig. 2.—Medical certificate for person who died of bronchopneumonia, showing the correct sequence of significant data reported.

CASE 3.—On Aug. 25, 1952, a 63-year-old male was admitted to the hospital where x-rays made on Aug. 31 showed adenocarcinoma of the rectum but no evidence of metastasis. Malignant neoplasm was removed on Sept. 13. A diagnosis of syphilis was also made. He was discharged on Nov. 3 as improved. On March 3, 1954, an x-ray examination at the dispensary showed pelvis apparently normal; however, there was an unusual shadow to the left of the sacrum. On June 19, he was readmitted with recurrent carcinoma of the rectum with invasion of the urinary bladder. He was discharged unimproved on July 27. On Jan. 3, 1955, he reported to the dispensary for treatment of the carcinoma of the rectum and was admitted to the hospital on Jan. 4. The examination showed a recurrent carcinoma of the rectum with invasion of the urinary bladder and metastases throughout the abdomen, syphilis, and decubitus ulcers. Bronchopneumonia developed on Jan. 9, and the patient died on Jan. 12. Autopsy confirmed the above findings.



Optional Items Related to Pregnancy, Labor, and Delivery
(Enter one or more checks in each section)

Conditions Present During Pregnancy
(Check one or more items)

☐ None known
☐ Pre-eclampsia
☐ Eclampsia
☐ Hypertensive disease
☐ Uterine bleeding, not associated with labor
☐ Pyelitis
☐ Nephritis
☐ Heart disease
☐ Diabetes
☐ Syphilis
☐ Tuberculosis
☐ German measles
☐ Other viral infection (specify)
☐ Anemia
☐ Malignant neoplasms or related conditions
☐ Injury or operation
☐ Other (specify)

Conditions of Labor
(Check one or more items)

☐ Normal labor
☐ Placenta praevia
☐ Abruptio placentae
☐ Other hemorrhage
☐ Prolapse of cord
☐ Breech presentation
☐ Other malpresentation
☐ Labor, 30 hours or more
☐ Other (specify)
☐ No labor*

Methods of Delivery
(Check one or more items)

☐ Spontaneous
☐ Low forceps
☐ Mid forceps
☐ High forceps
☐ Low cervical cesarean section
☐ Classical cesarean section
☐ Other cesarean section
☐ Breech extraction
☐ Internal version and extraction
☐ Other (specify)
☐ Laparotomy for ectopic*
☐ Curettage, therapeutic termination*
☐ Curettage for incomplete termination*

*For inclusion only on Fetal Death Certificates in areas where regulations call for reporting all fetal deaths.

Was mother's blood tested for Rh factor? No ☐ Yes, Rh negative, sensitized ☐ Yes, other ☐

Congenital malformation? No ☐ Yes ☐ If Yes, describe

Birth injury to fetus** No ☐ Yes ☐ If Yes, describe

** Use "infant" in place of "fetus" on live birth certificate.

Fig. 3.—A supplemental medical and health section for live birth and fetal death certificates.

The medical certificate would be filled out in the following manner: line (*a*), part 1, bronchopneumonia, line (*b*) metastatic cancer of bladder and abdomen, and line (*c*) adenocarcinoma of rectum, with interval between onset and death being (*a*) three days, (*b*) one year, and (*c*) three years. Part 2 would indicate syphilis as the other significant condition contributing to death.

BIRTH CERTIFICATE

A small change, designed to improve the usefulness of the statistics compiled from the item concerning children previously born to the mother, was made on the birth certificate. The responses to this item provide basic data for studies of fertility and an understanding of problems of fetal loss to mothers of differing ages and gravida. Item 16*c* (on the standard certificate) now requests information on all fetal deaths rather than just those of 20 weeks' gestation or more (fig. 1). The collection of this information, which has been endorsed by the World Health Organization, will make possible an important advance in the knowledge available on pregnancy wastage.

Many states now collect, in addition to the legally required information on the birth certificate, a supplemental medical and health section. This section is not part of the standard certificate and is frequently added at the bottom or on the back of the certificate. A checklist form for collecting the supplemental information has been successfully used in the state of New York, and an adaptation of that form (fig. 3) is recommended for use in other states planning special studies requiring this information.

Aldosterone.—There is a close correlation between aldosterone output and electrolyte balance in man. . . The effect of aldosterone may vary somewhat under various conditions of renal function, electrolyte load and capillary equilibrium. This is not surprising, since the effect of other corticosteroids is conditioned by physiologic factors. In normal man, aldosterone plays a part in renal adjustment to changes in electrolyte balance. This adaptation is impaired in primary adrenal insufficiency. Removal of the pituitary does not necessarily result in loss of this capacity; aldosterone output may be increased during sodium deprivation in a patient after hypophysectomy. In the adrenogenital syndrome and in Cushing's syndrome, the output of aldosterone is usually not far from normal. . . When excess aldosterone appears in a patient with heart disease, the nephrotic syndrome, hepatic cirrhosis or toxemia of pregnancy, the initial effect on the kidney is retention of sodium, and the accumulation of edema is favored by the disturbed capillary equilibrium. In this case, the high output of aldosterone is secondary to the presence of other diseases, and the effect of the hormone may be modified by changes in the kidneys and in other tissues. Aldosterone does not show its usual effects when the kidneys fail to respond. In a case of "sodium-losing nephritis," a high output of aldosterone was associated with dehydration and a loss of sodium in the urine; later the output of aldosterone fell to normal when a very high sodium intake resulted in improved hydration, with very high daily excretion of sodium. Aldosterone is secreted by the human adrenal. At a physiologic level its chief effects are to decrease sodium excretion and to increase potassium excretion. The fraction which appears in an active form in urine has been measured in normal men and in various patients. The output of aldosterone in normal men is closely related to sodium and potassium intake and balance, and suggests an effort to return the altered balance toward normal. The pituitary appears to have little control over its secretion in man. Aldosterone output is increased: (1) in normal men on diets low in sodium or high in potassium; (2) in the nephrotic syndrome, congestive heart failure, hepatic cirrhosis, or toxemia of pregnancy during periods of exacerbation and accumulation of edema: effective treatment and improvement of the underlying condition result in reduced aldosterone output and diuresis; (3) in tumors of the adrenal cortex which secrete aldosterone.—J. A. Luetscher Jr. and R. H. Curtis, Aldosterone: Observations on the Regulation of Sodium and Potassium Balance, *Annals of Internal Medicine*, October, 1955.

PRESENT STATUS OF PREVENTIVE PSYCHIATRY

OBITER DICTA

Francis J. Braceland, M.D., Sc.D., Hartford, Conn.

An obiter dictum is, in the language of the law, an incidental or collateral opinion uttered by a judge and, therefore (as not material to his decision or judgment), not binding. Should such opinions be uttered by a lesser luminary, there is always the danger that the opinions will simply be considered individual impertinences, but in spite of this I propose that this present address of the Chairman of the Section on Nervous and Mental Diseases be considered as obiter dicta and certainly in no manner be held binding. The chairman of any section by reason of his position is supposed to have spent at least some little time on the Mt. Olympus of his particular specialty and, though his status is in no way juridical, it is not altogether unusual to expect that he will set forth some rather definite pronouncements that by custom and by courtesy no one in the audience will challenge. It is known that the chairman's Jehovah titer might be slightly elevated, even though his appreciation of the passage of time might be slightly depressed. The often hapless audience, more captive than captivated as Alan Gregg puts it, can only hope and pray that his terminal facilities are not altogether out of order.

PRESENT CONCEPTS OF MENTAL HEALTH AND DISEASE

This is a particularly propitious time to address the members of this section, for it is safe to say that today there is no subject within the entire field of medicine that is more widely and continually discussed than is psychiatry. This is true partly because of the urgency and the poignancy of man's personal problems in this present nuclear culture and partly because our present civilization looks upon man himself as a problem. Added to this, the whole field of psychiatry is presently in a ferment. New drugs have appeared that are obviously potent and in some fashion useful, and these drugs, in addition to helping the patients, are also "treating" the doctors. After a long arid period with an intervening short wave of adrenal enthusiasm, attention has now centered upon drugs that affect mood and influence behavior, and fields that long lay fallow are sown now with reserpine and chlorpromazine.

In addition to all of this, it is now becoming evident that medicine at midcentury is drifting more toward a unitary concept of health and disease, in which the patient is viewed not only in the light of pure science but also against the backdrop of his environment and as a contributor to his illness as well as its subject and object. This delights the psychiatrist. Health and disease are now being seen as modalities of life determined by forces and stresses arising from within and without the organism. This orientation, by no means new to medicine, was lost sight of when medicine became wholly absorbed in the scientific delineation of disease entities and assiduously tracked down their specific causes and cures. The whole unitary concept is now being rediscovered. Actually Claude Bernard (1813-1878) clearly indicated that health and disease are phases of life processes. He submitted that the conditions necessary to life are found neither in the organism nor in the outer environment but in both at once. The outer environment is essentially the same, he pointed out, for both living and inorganic forms, but the inner environment is special to each living being. The capacity to maintain internal homeostasis in the face of internal and external stress is therefore essential to health and to life. Thus, Claude Bernard laid the groundwork for an understanding of the dynamic properties of environment, internal and external, and the types of processes to be observed among them. The psychiatrist arrived laboriously and circuitously at the same understanding through his work with the emotionally sick.

Thirdly, the time is also propitious for addressing such a group because the whole amorphous field of mental health, hitherto marked by either complete neglect or wide diffusion of effort, has finally attracted the attention of the public at large and, in some instances, their legislative representatives, with the result that the magnitude of the problem is being recognized and various groups are casting about to see what can be done about it. Mental health week this year witnessed a gigantic cooperative effort in public education involving the use of all possible mediums of communication and reaching millions of people from coast to coast. What the results of this will be remains to be seen. That mass education will finally erase or correct certain conceptions and ideas that hamper progress in psychiatry is a happening devoutly to be wished for. Still prevalent, however, is the belief—a compound of truth and fallacy—that mental disorder comes from weakness of character, heredity, or way of life, together with the notion that cure of a psychotic break is a rarity.

Lest we be tempted to preen ourselves on our present-day advances, however, we should bear in mind that stigmatization is still the lot of the patient who is placed in a mental hospital even in these enlightened times. Laws regarding hospitalization, commitment, and financial support are antiquated. Hospitalization plans are openly discriminatory, some going so far as to deprive a patient of benefits should he be moved from the medical to the psychiatric ward of the same general hospital! People still have curious impressions of mental disease, even those who purportedly should know better. The tendency is not to consider as mentally ill a patient who shows no bizarre or violent behavior, even though he be suffering from a condition that if untreated leads to a disabling chronic condition, suicide, or worse. Obviously, therefore, there is still much work to be done.

Psychiatrist-in-Chief, Institute of Living.

Chairman's address, read before the Section on Nervous and Mental Diseases at the 104th Annual Meeting of the American Medical Association, Atlantic City, June 8, 1955.

AREAS FOR IMMEDIATE ENDEAVOR

Before embarking further on a discussion of the status of preventive psychiatry, which is the main concern of this presentation, I might perhaps anticipate a bit and, with no regard for orderly procedure, suggest what my conclusions regarding it will be. Admittedly preventive psychiatry, which is everybody's business, should be a very important concern of the discipline of psychiatry itself, but we are not yet equipped to understand which direction our efforts in this regard should take. To prevent something, we need to know its causation, and there is no need to say that we have not yet reached this happy state in regard to the several important psychiatric illnesses.

In the meantime, however, there are two segments of our problem that require our immediate and concentrated attention and involve things that we can do something about. The first is the improvement of our treatment procedures for the benefit of those patients who are presently ill in our hospitals. It is true that great strides in the proper direction have already been made in this regard and our hopes for assistance from drugs and chemical agents are much greater now than they have been for several decades. Caution is the watchword, however. These new therapeutic agents will have to be checked carefully and thoroughly before our enthusiasm about them beclouds our scientific vision. It does appear as though these drugs are potent additions to our armamentarium. They do control behavior in many instances, and they do help to control anxiety and agitation, but several years will be required before we can present a true evaluation of their efficacy. It behooves us all, therefore, to exercise restraint and to keep careful watch and careful records. It may be we are in the way of accomplishing great things in our new directions, but until we are sure we must restrain our enthusiasm, and particularly must we avoid being led to make statements that may ricochet upon the specialty, harm the patients, and disappoint families.

The second area that demands our attention is in the field of research. Funds are finally becoming available in increasing amounts for specific research projects. The problem now is to find capable personnel and research scientists to undertake the important work that is at hand. Already it is being hinted that there are more stipends available than there are satisfactory projects being presented or capable men to do the work. Unfortunately, it is not to be expected that these psychiatric research men will spring fully armed as did Athene from the brow of Zeus. In addition to the long years of training required of them and the meager pecuniary rewards that await them, they are now faced with a tour of two years of military service. True enough, the rewards of a researcher are scientific and spiritual and not to be measured in terms of cash, but these bright young men, many of them with families, are beset externally by the strong pull and the siren song of the lucrative private practice that their colleagues enjoy. It is only a consuming interest and a sense of dedication that will keep them from being lured from the fastness of their laboratories, and we must help in some fashion to keep these men at work. Obviously, this situation is a serious and pressing one. Without being melodramatic about it, we may say that the welfare of millions of sick people is dependent upon them. With funds available, interest high, and the crying need for excursions into unexplored scientific psychiatric areas, it would indeed be a tragic setback if we were to have to confess our inability to meet the demands made upon us because the laborers are few. Surely this problem is worthy of the sustained interest of all members of the specialty.

METHODS OF EFFECTIVE PUBLIC EDUCATION

To return to the question of prevention, "Satus est initius mederi quam fini" (It is better to doctor at the beginning than at the end.), from the "Adagia" of Erasmus, still holds. The question is how do we set about this part of our task. Education and the spreading of proper information is necessarily the first step to be taken, but it has been found in psychiatry, as it has to some extent in any field dealing with illness, that public information on what constitutes illness and health is a hodgepodge of folklore, information, and misinformation. As we have seen repeatedly, the use of mass propaganda methods may give a distorted picture of any public health problem. Certain hazards are involved as well. One of the hazards of any health campaign is the ease with which fears and anxieties are aroused in many people. Certainly the anxiety potential inherent in the thought of a mind's becoming diseased is paralleled only by that associated with the inevitability of death.

In a recent study of attitudes toward mental illness, Cumming and Cumming [1] investigated the results of an intensive educational program containing a wide variety of material. Working with two small homogenous communities in Canada, one experimental, the other control, and using before and after measurements, they found evidence of limited achievement in the teaching of sound principles and attitudes in the participating community. However, in the same community there was a suggestion of increasing anxieties, making for less adequate interpersonal relationships between the inhabitants. This points up the difficulties involved in changing attitudes toward mental health and disease. Public education regarding a terrifying illness tends to foster either emotional resistance or hypochondriacal preoccupation, and both reactions are destructive to prophylaxis. Our problem was heretofore to call attention to the ravages of mental illness. This mission has been accomplished, and we should now pursue a new approach. The theme of mental illness must always be placed in as favorable a light as is consistent with the facts and always from the point of view of the promise that research holds for the future. It is urgently important to stress the consideration that in most of the prevalent forms of mental illness, improvement or recovery is a common occurrence, particularly if early treatment is instituted. Psychiatrists and, in fact, all individuals who participate in psychiatric educational programs for the laity should endeavor to reassure rather than to threaten or frighten. They should, above all, make sure that they remain in the realm of fact rather than soar to the stratosphere of theory or speculation where they are soon out of sight and hearing. It is axiomatic that the presentation should clarify rather than confuse and that the audience be spared technical language and abstruse, complex material that they are not prepared to handle.

---

[1] Cumming, M. E., and Cumming, J.: The Social Control of Mental [illegible] with Special Reference to the Strategies of Isolation and Denial, [illegible] be published.

Education in mental health should stress the wide range of normal behavior and the relativity of emotional well-being with its tendency to fluctuate from time to time, just as physical well-being tends to vary in every human being for reasons inherent or imposed. That emotions are a fundamental importance in human behavior and in both physical and mental health needs further amplification. The universality of anxiety, with its constructive as well as its destructive aspects and its somatic repercussions in addition to its psychological superstructure, is a basic point to get across. People need to understand that the past is a powerful determinant of the present, the unfailing reservoir of motivations and values, good and bad, important to the security of the individual. The impact of social and cultural factors on personality development and functioning is an important consideration in preventive psychiatry. A useful approach in preventive psychiatry is one that not only clarifies psychological needs at different periods of development but also indicates types of stress that lead to emotional insecurity and anxiety. Along with emphasis on the principles of child development and care and on problems of adolescence and maturity, marriage and parenthood, work and recreation, and aging and old age, there should be specific attention to the power of basic human emotions, especially the destructive ones that drive men violently forward to ephemeral goals and backward to immature behavior.

Probably mass methods of public education will always be less effective in reorienting the public to major social and public health problems than is the approach by small groups of key individuals in professions likely to influence popular opinion. Considerable interest and, often, particularly useful auxiliary work in mental health have emerged from such important groups as religious leaders, members of the legal profession, teachers and P. T. A. groups, public health nurses, community leaders, industrial supervisors, and trade union officials. These groups should be brought further into the orbit of preventive psychiatry and assigned additional responsibility in efforts to promote preventive and curative facilities and to secure support for basic research.

CAUSATIVE FACTORS AND PREVENTION

Prevention of mental illness is an exceedingly complex task. As already mentioned, it implies the control of causes. Unfortunately, in many important categories of psychiatric illness, the causes are not clearly established. We are quite certain, in fact, that with the exception of certain reactions clearly based on infection, organic disease, toxic states, and the like, though even here the picture is modified by the personality of the individual, no one cause operates in a reaction that we call psychiatric. Neither nature nor nurture affords a cogent explanation of neurosis or psychosis, though in cooperation with other factors each is undoubtedly significant. The multiplicity of possible causes would seem to make it difficult to know where to begin in the field of prevention. We know, however, that multiple causation does not preclude the possibility of effective therapeutic work. Clinical experience shows that an attack upon one or more of the various etiological possibilities in any given case may give symptomatic relief that is thoroughly worthwhile. The chain of psychopathology is sometimes no stronger than its weakest link, particularly if that link has been recently forged. So in prevention, we can work on some of the factors that we know tend to disturb the individual in his intrapersonal and interpersonal adjustment.

Sound programs of mental health are not limited to the provision of facilities for the diagnosis and treatment of malignant processes already under way. They involve attention to potential disturbances before they materialize, as well as to the danger signs of incipient mental disorders and to actual symptoms at an early stage. By giving immediate and long-term support, by administering first aid when necessary or by seeing that the patient gets it somewhere else, and by keeping in touch with patients discharged from psychiatric hospitals the mental health clinic can do much to prevent unnecessary admission and retention of patients in mental hospitals. The mental health clinic serves to bridge the enormous gap between the hospital and the community. Certainly money spent on child guidance and on classes for the education of the subnormal child is an excellent investment in public health. Certainly maternity and child welfare clinics offer substantial preventive opportunities; yet we should not forget that attention to our aging population would also yield enormous gains in prevention. The accumulation of experience shows more and more clearly that mental illness in patients over the age of 65 is often, in large part, a reactive condition and, therefore, preventable as well as treatable. As Holt[2] recently intimated in a survey of problems connected with the evaluation of mental health programs, a program designed to increase the quality of mental hygiene in older persons might have "as many beneficial effects in terms of the population generally as a program would that was designed specifically for its effect on children."

FAMILY PHYSICIAN'S ROLE IN PREVENTION

Current attempts to promote conditions favorable to mental health seem to be based on community projects drawing family and school experiences, employment resources, church, recreational outlets, and corrective and protective organizations into a broad program of mental health services.[3] One can have no quarrel with these efforts. At the same time, we should also note that the key preventive agent in the entire mental effort may well be the physician in community practice, for the physician in general practice sees every segment of the population, every age group, and persons at all economic and social levels. He is aware of the enormous suggestibility of patients in matters of health and of the mass of misinformation that weighs upon them. False ideas absorbed from intimates, acquaintances, and reading of various kinds often propel them on a natural or unnatural journey toward anxiety and symptom formation. The family physician is in a strategic corrective position, and it is always an important part of his role to remove misapprehensions and to relieve anxiety in his patients.

---

[2] Holt, L. B.: Problems in the Evaluation of Mental Health Programs, in Witmer. H. L.: Evaluating the Approaches, Methods and Techniques for Developing Mental Health Programs, to be published.

[3] Training and Research in State Mental Health Programs: A Report to the Governors' Conference, Chicago, the Council of State Governments, 1953.

It has been said that the best heredity in the world will not guarantee immunity from psychiatric disturbance if essential parts of the physical equipment have been damaged by accident or illness.[4] The practitioner plays a key role in the prevention of such tragedies. In his care of expectant mothers, in his obstetric work, in his care of babies and children, he may accomplish preventive psychiatry of heroic proportions. It is he who is in the best position to recognize and allay parental anxieties before these become disturbing to either the parents or the child. It is hoped that he will never forget that the time lapse for this to happen in is very short indeed; hence the advisability of dealing with tensions before and after the baby's birth and of handling parental concern during a child's illness and during other periods of stress. Helping parents with handicapped children is psychiatric prophylaxis of a high order. This help should be extended at the earliest possible moment, so that both child and family may be spared the harrowing emotional experiences that tend to arise in these tragic situations.

In his relationships with children, the family physician may be well able to neutralize the adverse effect of parental preoccupation with health. He can prevent unnecessary invalidism in children who, because of past illness, often completely overcome, are felt to be handicapped, delicate, or otherwise unfit for play and recreation. Hypochondriasis is easily engrafted on the immature personality, together with unhealthy preoccupation with the thinking and feeling self. Physicians know and others should learn that we should refrain from careless talk in the presence of a child, for a child is deeply concerned with his own body and is quick to pick up suggestions of direful possibilities. The doctor should be prepared to orient the child adequately for medical or surgical procedures; it is he who can best reassure his young patient, rather than the worried, overanxious parent. In treating patients in adolescence and early adulthood, the doctor should not neglect any opportunity he may have to correct false notions about health, particularly about tension-laden sexual questions. In the field of marriage guidance, he can do good preventive work by correcting certain common misapprehensions and so averting anxiety reactions that often arise at that time and not infrequently reach alarming proportions.

Thus, to the usual duties imposed upon the practitioner in the field of psychiatry; namely, the handling of the mildly sick or their referral to proper facilities and the early recognition and disposal of the more severe psychiatric disorders, is added the general preventive task of attempting to eliminate conditions in and about his patients that are generally harmful to mental health. In the introduction to his recent paper, "The Doctor, His Patient and the Illness," Balint[5] pointed out that by far the most frequently used drug in general practice is the doctor himself and that it is a drug without pharmacology, without directions as to dosage, form, and frequency of administration, and without leads to the hazards, allergic responses, or undesirable side-effects. We know, however, that it is an extremely powerful drug and that use of it relieves more suffering than has yet been recorded for the most powerful drug in the pharmacopeia. The family doctor of old knew this to be so and "prescribed" himself in generous doses. It is time that we recaptured his art, and, when we do, we will be mental hygienists par excellence, even if without portfolio.

200 Retreat Ave. (2).

[4] Preston, G. H.: The Substance of Mental Health, New York, Farrar & Rinehart, 1943.

[5] Balint, M.: The Doctor, His Patient, and the Illness, Lancet 1: 683-688 (April 2) 1955.

CLINICAL NOTES

A SIMPLIFIED LIGHT-WEIGHT APPARATUS FOR KYMOGRAPHIC UTEROTUBAL INSUFFLATION

WITH AN EFFERVESCENT TABLET AS SOURCE OF CARBON DIOXIDE

Isidor C. Rubin, M.D., New York

The first kymographic uterotubal insufflation apparatus was assembled in 1925 and a report published in 1929.[1] Since then, a number of modifications have been devised by others. In general, the different types comprise a mechanism of precision essential for the scientific clinical determination of tubal patency and nonpatency, including various degrees of tubal obstruction, spasm, and subfunctional tubal conditions. By correlating pressures recorded on the kymograph with the calibers of graduated capillary tubes corresponding to the diameters of the human ovum, it has been possible to estimate degrees of tubal stenosis obstructive to passage of the ovum through strictured tubes.[2]

A discussion of modifications by others of the insufflation apparatus I assembled was given at Rio de Janeiro, Brazil, in 1949.[3] Without going into details, it appears that the different types of apparatus designed for uterotubal insufflation were based chiefly on claims of lighter weight, the use of aneroid manometers, or different flow meters and readier operability. These claims have some validity but by and large do not detract seriously from the serviceability of the Becker-

---

Because of space limitations figures 2 and 4 have been omitted from THE JOURNAL and will appear in the author's reprints.

The apparatus described was demonstrated at the International Congress of Obstetrics and Gynecology, Geneva, Switzerland, July, 1954, and is made by the Grafax Company, 32 E. 10th St., New York.

The effervescent tablets used in this study were supplied by the Ortho Pharmaceutical Corporation, Raritan, N. J.

The Swinney filter is made by Becton Dickinson & Company.

[1] Rubin, I. C.: A New and Improved Apparatus for Uterotubal Insufflation, J. A. M. A. **92**: 1597 (May 11) 1929.

[2] Rubin, I. C.: Tubal Obstruction as a Cause of Sterility and Its Nonoperative Treatment, Am. J. Obst. & Gynec. (supp.) **61A**: 698, 1951; Uterotubal Insufflation: Value in the Treatment of Tubal Obstruction to Ovular Migration, Fertil. & Steril. **5**: 311, 1954.

[3] Rubin, I. C.: Physical and Dynamic Aspects of Kymographic Uterotubal Insufflation Including Apparatus, An. brasil. ginec. **28**: 329, 1949.

Rubin apparatus, which is sturdy, portable, and long-lasting. It has been used routinely in many cases since 1925 and continues to give complete satisfaction.

In terms of weight, most of the modified models are somewhat lighter. Whether they contain an electrically driven kymograph, an aneroid manometer, or a gas flow meter instead of a spring motor, a siphon meter, and a pressure reduction valve, respectively, makes little difference in the end-results. The important thing is that they contain the essentials for scientific determinations.

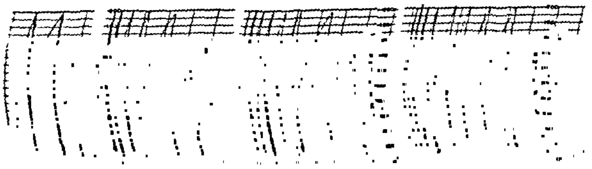


Fig. 1.—Duration of workable pressures produced by effervescence employable in uterotubal insufflation when (*A*) one-fourth, (*B*) one-half, (*C*) three-fourths, and (*D*) one whole tablet is used.

These essentials are realized in the Bonnet,[4] Sharman,[5] Kidde, Marbach,[6] Weisman,[7] and Grafax models and others. The compact Grafax insufflation apparatus was early devised to overcome the objection of size and weight. In this apparatus, a small siphon volumeter is combined with an aneroid manometer and a writing pen attached to a bellows, which was a distinct improvement. The spring motor was originally adopted to eliminate the noise caused by an electrically driven kymograph that interfered with auscultation for the tubal souffle. As silent electric motors have become available, one has since been adopted in the Grafax apparatus, which was made according to my specifications and has been found very useful and handy.

A drawback of practically all types of apparatus designed for scientific uterotubal insufflation is their initial cost. This has led to the adoption of so-called simplified methods, based on the use of air instead of carbon dioxide. Insufflation of air is fraught with danger of embolism, the disastrous effects of which are prevented by carbon dioxide insufflation. The safety of carbon dioxide has been amply and adequately established during the last 34 years, and it is the gas of choice, to which any type of insufflation apparatus is now adapted. However, in order to make the apparatus more generally available, it has been necessary to eliminate some of the costly parts. The reduction has been accomplished by means of a simple device.

COMPONENTS

For many years the writer has entertained the idea of using an effervescent tablet as source of supplying the carbon dioxide gas. This should eliminate a carbon dioxide tank and reduction valve and even the much lighter sparklet, which, however, requires a reserve chamber to take up its powerful pressure. The effervescent tablet does not require these parts because the entire volume of carbon dioxide needed for the Rubin test for patency of the fallopian tubes is contained in its component ingredients, which also necessarily determine the practical amounts of pressure. Preliminary experiments made with sodium bicarbonate and citric and tartaric acid combinations in powdered form and later in compressed tablets have yielded data as to the volume of carbon dioxide produced by different combinations of the ingredients, the duration of the effervescence, and the pressures recorded. The latter ranged from a certain maximum at full effervescence to zero, which was reached when the tablet was completely disintegrated. The actual amounts of carbon dioxide generated from the tablet compared roughly to the theoretical yield as calculated by chemical formulas. Tablets were found to be preferable to powders because they were dissolved more gradually, permitting better pressure control. Figure 1 demonstrates pressure curves and rate flows when one-fourth, one-half, three-fourths, and one whole tablet was used. A whole tablet contains sodium bicarbonate (1.78 gm.), citric acid (0.90 gm.), and tartaric acid (0.90 gm.). The volume of carbon dioxide obtained from effervescence of this tablet is sufficient for uterotubal insufflation in all cases.

After trying different devices for containing the effervescent tablet and the amount of water required for the effervescence, the volume of carbon dioxide thus produced was measured by the siphon volumeter of the Becker-Rubin apparatus and the pressures obtained were simultaneously recorded. A 30 lb. gauge was found to be sufficient for all trials. The highest level of pressure reached when the entire volume of carbon dioxide produced by full effervescence of the tablet was contained within the cup having a capacity of 30 cc. was more than 15 lb., a driving force adequate for the purposes of uterotubal insufflation. In order to reduce the pressure produced by the effervescence to practical levels, it was found necessary to use a primary pressure limiter, which does not permit the carbon dioxide to exceed a pressure of 300 mm. Hg. From the pressure limiter, a flow control valve controls the rate of flow to the secondary pressure limiter governing the oscillations

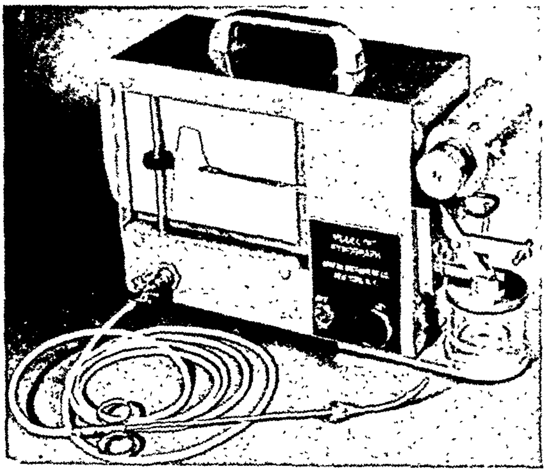


Fig. 3.—Insufflation apparatus, with plastic cup in place closed by toggle clamp and cap, insuring gas-tight circuit for insufflation.

---

4. Bonnet, L.: Usefulness of Measuring Output for Study of Stenosis of Fallopian Tubes by Tubal Kymographic Insufflation, Gynéc. et Obst. 38:265, 1938.

5. Sharman, A.: Some Lessons from 4,000 Uterotubal Insufflations, Brit. M. J. 1:239, 1954.

6. Marbach, A. H.: Automatic Recording Apparatus for Tubal Insufflation, Am. J. Obst. & Gynec. 39:1072, 1940.

7. Weisman, A. I.: A New Multipurpose Apparatus for Use in the Diagnosis and Treatment of Sterility in the Female, Am. J. Obst. & Gynec. 54:145, 1947.

in pressure recorded by a writing pen. The total weight of these parts is relatively small. The smaller type of Grafax kymograph, because of its light over-all weight and simplicity in operation, has been admirably adapted to use of the effervescent tablet (fig. 2 and 3). The new apparatus, thus assembled, consists of the following parts (fig. 4): (1) tablet of sodium bicarbonate with citric and tartaric acids, (2) carbon dioxide chamber, (3) closure cap, (4) pressure-limiting bellows, (5) flow-control valve, (6) pressure-recording manometer, (7) kymograph, and (8) outlet to uterine cannula.

The carbon dioxide chamber is a small removable plastic container of 30 cc. capacity made of durable acrylic plastic of suitable size and shape to receive a tablet plus 4 cc. of water. The closure cap serves to seal off the open top of the carbon dioxide chamber after the tablet has been dropped in. It is attached to the instrument by means of a "toggle" clamp (fig. 4*J*) so that the cap can be opened and closed by simply raising and lowering a small lever. Placed immediately above the carbon dioxide chamber, the pressure-limiting bellows (fig. 2 and 3) prevent the pressure delivered to the insufflator from rising above 300 mm. Hg. The flow-control valve is a stainless steel needle constructed to permit controlled flow of carbon dioxide through the valve. Once the stop is adjusted on the dial for the correct rate of flow, it repeats the same rate each time the valve is turned to the "on" position at the point that has been found by trial to deliver the desired rate flow, i. e., that which produces an elevation of pressure not greater than 100 mm. Hg in five seconds.

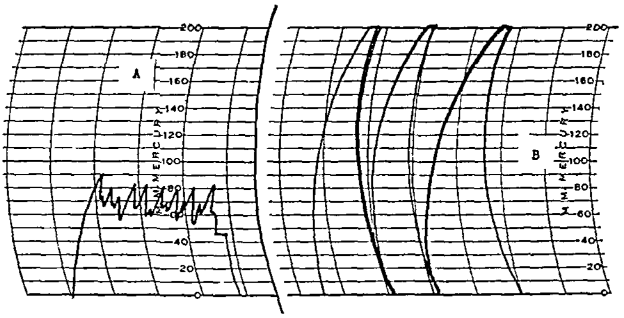


Fig. 5.—*A*, insufflation curve of normal tubal patency and function. *B*, graph typical of tubal nonpatency.

A metallic bellows is used as the actuator for the writing pen mechanism for the pressure-recording manometer. This bellows also has built into it a pressure limiter that does not permit the maximum pressure to exceed 215 mm. Hg. The "V" type recording pen uses ordinary ink and is in contact with the paper because of gravity. No springs or adjustments are needed to make this contact. The chart paper used is of the continuous roll type (60 hours' running time) powered by a silent synchronous motor. As the recording of the test is made, the paper moves out of the instrument and can be cut off by simply pulling against a built-in knife edge (fig. 2 and 3).

A Luer lock connects the outlet tubing of rubber 36 in. long and 3 mm. in caliber with the uterine cannula. A Swinney filter is interposed between the tubing and the cannula in order to exclude bacteria and spores. This filter is inexpensive and is sterilized in the autoclave wrapped in paper or aluminum foil. When a Swinney filter is not available, a test tube containing antiseptic solution may serve to wash the carbon dioxide bubbles. This precaution, although not absolutely necessary, is recommended for safety. It has not been used in older apparatus, and no contamination effects have been observed. Clinical experience with the effervescent tablets lacking the filter has so far been without untoward sequelae.

The oscillations resulting from carbon dioxide insufflated through the uterus and tubes as generated by the effervescent tablet are the same as are obtained when the carbon dioxide flows from a compressed tank. The patient's pelvic sensations, the tubographs (fig. 5), the auscultatory findings, the subjective sense of percolation, and the presence of a subphrenic pneumoperitoneum are also just as characteristic when the tubes are found to be patent as after the test carried out with the older types of insufflation apparatus. The shoulder pains have been observed to be less intense, due possibly to humidification of the effervescent carbon dioxide bubbles, which are probably more rapidly resorbed.

SUMMARY

A new insufflation apparatus has been devised for use in the Rubin test; this has all the essentials of the old competent apparatus, with the advantages of smaller size and weight due to adoption of an effervescent tablet having a known potential quantity of carbon dioxide for each test. The effervescent tablet containing sodium bicarbonate, citric acid, and tartaric acids in suitable proportions as the source of carbon dioxide supply has made possible the elimination of gas tanks, heavy pressure-reducing valves, and reserve chambers. The new kymographic uterotubal insufflation apparatus has been designed to make its use more economical and to make it more generally applicable to the diagnosis and treatment of sterility due to tubal obstruction.

911 Park Ave. (21).

OCCLUSION OF BOTH INNOMINATE VEINS

RESTORATION OF BLOOD FLOW BY ARTERIAL GRAFT

William S. Reveno, M.D.
Lawrence Reynolds, M.D.
and
Forest D. Dodrill, M.D., Detroit

Obstruction to the blood flow in the larger mediastinal veins has always been recognized as a serious complication with a poor prognosis. While it is not an uncommon condition that is too difficult to recognize, suitable treatment is often an insurmountable problem because of the relative inaccessibility of the veins and the variety of causative factors of the condition. Roberts, Dotter, and Steinberg[1] cited neoplasm as the chief of

---

From the departments of medicine, radiology, and surgery, Harper Hospital.

[1] Roberts, D. J., Jr.; Dotter, C. T., and Steinberg, I.: Superior Vena Cava and Innominate Veins: Angiocardiographic Study, Am. J. Roentgenol. 66: 341, 1951.

these causes, with syphilitic aneurysm and thrombosis following in that order. Ochsner and Dixon,[2] reviewing 120 cases of superior vena caval obstruction, found 36.6% due to phlebitis, 29.1% to external compression (half of these were associated with mediastinal neoplasm), 23.3% to mediastinitis, and 10.8% of unknown or unstated cause. The axillary and subclavian veins are most frequently involved, according to Veal and Cotsonas [3]; then come the superior vena cava, brachials, innominates, and jugulars. Primary involvement of a single innominate vein is quite rare, and these authors have noted only 11 such cases, all secondary to compression by an aneurysm.

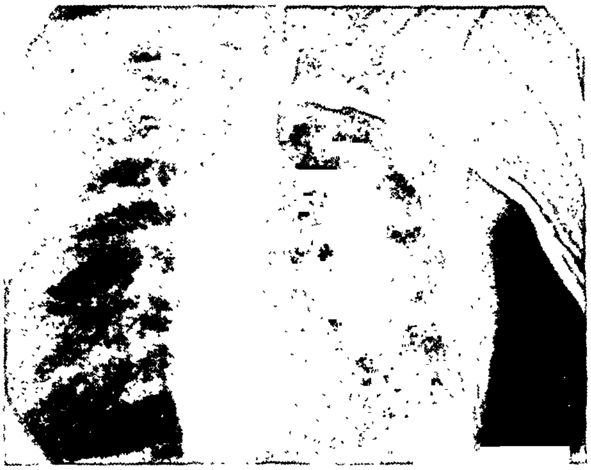


Fig. 1.—Venogram showing obstruction at junction of left subclavian, jugular, and innominate veins.

We here report the case of a woman who developed signs of occlusion of the left innominate vein three years after radical mastectomy on the left. Upon mediastinal exploration the right innominate vein was also found occluded. Adequate blood flow was reestablished through an arterial graft connecting the left innominate vein and the superior vena cava.

REPORT OF A CASE

A 48-year-old white woman had fully recovered from a radical mastectomy on the left for scirrhous carcinoma with metastasis to the axillary lymph nodes that had been performed in May, 1951. Three courses of deep x-ray therapy had been given during the following six months. Nearly three years later, in March, 1954, she developed swelling about the right eye with lacrimation, and within the next four weeks her face began to show increasing fulness. At the same time, bending over caused a marked suffusion of the head and neck and she became faint, almost "blacking out" on several occasions while gardening. Gradually there was difficulty with breathing when she was lying flat in bed, so that three pillows were required for comfort. During the next 12 weeks swelling of the left arm appeared and extended downward, involving the forearm and hand. Clusters of purplish venules were now observed over the left chest wall, and the veins of the right breast and along the right anterior axillary line became prominently distended. Finally the left jugular vein also became markedly distended, and the patient was having more dizziness and increasing difficulty with breathing and swallowing. While the face and neck were suffused, there was no cyanosis and the retinal veins did not show distention. Search for metastasis was unrevealing, and x-ray study of the chest showed no significant change in the lungs or mediastinum.

During venography, performed on Aug. 2, 1954, with 70% iodopyracet (Diodrast) injection into one of the veins of the left wrist, the patient developed sudden severe pain just under the middle of the left clavicle so that the injection had to be stopped. Films taken showed obstruction at the junction of the left subclavian, jugular, and innominate veins at the point of greatest pain (fig. 1). This finding, added to the increasing disability of the patient, warranted mediastinal exploration. This was performed on Aug. 5, 1954.

Operation.—With the patient under anesthesia with gas-oxygen-ether, and with curare having been given as a relaxant, operation was performed by one of us (F. D. D.). An incision was made along the course of the left clavicle from the midline of the manubrium. The clavicle was resected subperiosteally and disarticulated at the sternoclavicular junction. The posterior periosteal bed of the clavicle was incised and the proximal two-thirds removed. The hugely distended axillary vein was exposed and dissected down to where it crossed the first rib into the thorax. Since the obstruction was more proximal, the incision was extended down over the sternum to form a hockey-stick and the sternum split down to the third intercostal space. With the spreader inserted, wide exposure of the anterior mediastinum was obtained. Both innominate veins were found obstructed; obstruction on the right was more severe, and the vein was reduced to a fibrous cord about half the size of a lead pencil. The distention of the left innominate vein stopped at about its midportion. Its constriction was due to a perivenous fibrous sheath extending from this point down to the superior vena cava and up around the right innominate vein to above the first rib (fig. 2). Dissection and removal of the fibrous sheath around the left innominate vein was accomplished quite well over its distal aspect, but it was impossible to do this for the right innominate vein, which was totally occluded. On palpating the left innominate vein, a thrombus was found to be present near the junction of the vein with the superior vena cava, extending distally to the junction with the jugular. The vein was incised, and a large mass of thrombus was removed. It was obvious at this point that to establish a venous channel of proper caliber some sort of vascular graft would have to be inserted between the left innominate vein and the superior vena cava. The right innominate vein was freed out to the first rib, tied off, and cut. The constricted portion of the left innominate between the superior vena cava and where its caliber was normal was excised, and a preserved aortic homograft was sutured between these two points (fig. 3). When the clamps were removed, the distention of the left innominate vein had disappeared and there was complete filling and good blood flow through the aortic graft. The pleural openings on the left and right were left for drainage of serum. An intercostal tube was placed in the third right intercostal

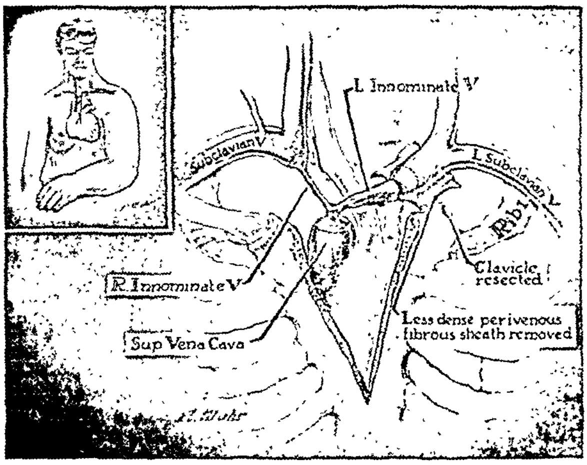


Fig. 2.—Incision and exposure of innominate veins. *Inset*, appearance of patient before surgery.

---

[2] Ochsner, A., and Dixon, J. L.: Superior Vena Caval Thrombosis: Review of Literature and Report of Cases of Traumatic and Infectious Origin, J. Thoracic Surg 5: 641, 1936.

[3] Veal, J. R., and Cotsonas, N. J., Jr.: Diseases of the Superior Vena Caval System with Special Consideration of Pathology and Diagnosis, Surgery 31: 1, 1952.

space for the removal of air and the incision closed airtight. The left half of the manubrium was excised partially so as not to press upon the aortic graft, and the sternal edges were then incompletely approximated for the same reason.

Course.—The patient withstood the six-hour procedure well, and convalescence proceeded without serious setback. On the second day 800 cc. of serosanguineous fluid was aspirated from the left side of the chest, and the tube was removed from the right side of the chest on the third day. The swelling of the left hand started to recede on the second day, and the fulness of the face and distention of the left jugular diminished daily. By the 14th day all swelling had disappeared and the venous clusters on the left chest wall were beginning to fade out. The distended veins over the right breast and axillary region remained unchanged, however. On the 19th day a small area of pitting edema appeared on the lateral edge of the left forearm just below the elbow. This recurred each morning and disappeared at the end of the day. It was believed due to local venous stasis, possibly from the incision in the performance of venography. The arm above this area retained the same size and appearance as was present before the occlusion of the left innominate vein. The patient was discharged on the 31st day. The pathologist's report disclosed that the perivenous fibrous tissue was invaded by undifferentiated carcinoma but that the vein walls had not been so invaded.

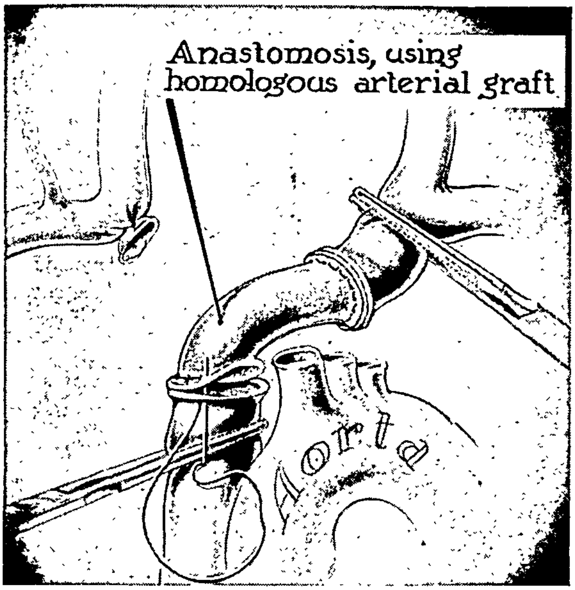


Fig. 3.—Aortic homograft replacing left innominate vein. Right innominate vein has been ligated and cut.

Since leaving the hospital the patient has gained in strength and gradually resumed her normal daily activities. Three months after discharge she was totally free of discomfort and the head and neck showed no congestion or venous distention, but edema of the left arm for 3 to 4 in. above and below the elbow recurred at the end of each day. Prominent veins were still present over the right breast and axilla, and purplish clusters of venules were scattered over the left anterior chest wall.

COMMENT

Occlusion of the left innominate vein was suspected in this patient because of the edema of the left upper extremity and the distention of the jugular vein on the same side. That this was due to external compression from metastatic mediastinal lymph nodes was disproved by the negative x-ray findings and the discovery of obstruction to the flow of contrast medium during angiography. However, this failed to account for the uniform swelling of the face, and it was not until the chest was opened that the explanation was found. Evidently the right innominate vein had been slowly occluded by fibrous tissue over a period of time during which collateral circulation was developing. Part of the back flow was being handled by the right lateral thoracic route, as evidenced by the dilated veins in the right chest wall, and probably also by the thyroid veins. The remainder was carried by the left internal jugular and innominate veins. This compromise continued until thrombotic occlusion of the left innominate vein disturbed the balance and precipitated the symptoms described. Increased venous pressure readings would no doubt have been found in both arms, but these were not determined because of inaccessible veins. Angiography was done because it promised more direct evidence as to the nature of the occlusive process.

There were two reasons for the venous occlusion in this case. The primary reason was the perivenous fibrosis that had completely occluded the right innominate vein and was seriously compressing the left. The latter, in turn, was abruptly blocked by a large thrombus. This fibrosis was at first thought due to x-ray therapy after mastectomy, but the finding of invasion by undifferentiated carcinoma that resembled the change found in the primary breast tumor settled the question.

Several methods of treatment have been attempted for occlusion of the large mediastinal veins, particularly the superior vena cava. Shunts to the azygos vein, mediastinal decompression, and venous grafts have met with limited success. Samson [4] reported the case of a 19-year-old boy with superior vena caval obstruction, who, on exploration, was found to have thrombosis of 1 cm. of the superior vena cava and the distal ends of both innominate veins. This area was resected; the left innominate was closed permanently and the superior vena cava closed just above the azygos. An autograft of superficial femoral vein was used with end-to-end anastomosis above and side-to-side anastomosis below; full recovery followed. Scannell and Shaw [5] proposed reconstruction of the superior vena cava by means of a free vein graft for patients in whom superior vena caval obstruction is the result of a benign process. They report a case in which a graft from the superficial femoral vein was used to bridge the gap between the right internal jugular and the right atrium. The graft remained patent, but the patient died of mediastinitis. Kay,[6] in discussing this report, stated that homologous or autogenous transplantation of veins in the treatment of superior vena caval syndrome secondary to chronic fibrosing mediastinitis is not successful. Two of his three patients showed sclerosis of the graft and nonfunction respectively.

Also in this discussion, Hanlon [7] reported the case of a 65-year-old man with malignancy in whom he had performed end-to-end anastomosis of an aortic graft to the right auricular appendage and attached the other end tangentially into the wall of the superior vena cava. The graft remained patent for four months. Deterling [7a] also reported satisfactory results for five months after

---

[4] Samson, P. C., in discussion on Lell, W. A.: Superior Vena Caval Obstructive Syndrome: Report of 3 Cases, Ann. Otol. Rhin. & Laryng. **60**: 754, 1951.

[5] Scannell, J. G., and Shaw, R. S.: Surgical Reconstruction of the Superior Vena Cava, J. Thoracic Surg. **28**: 163, 1954.

[6] Kay, E. B., in discussion on Scannell and Shaw.[5]

[7] Hanlon, R., in discussion on Scannell and Shaw.[5]

[7a] Deterling, R. A., in discussion on Scannell and Shaw.[5]

use of an aortic homograft to bridge a 6 cm. defect after excision of an obstructed segment of vena cava. Klassen,[7b] however, found the aortic graft thrombosed one month after its use to replace a constricted vena cava. Gerbode,[7c] outstanding investigator in this field, recounted his experience with 25 animals with homografts: every instance of aortic homograft was followed by thrombosis or gradual fibrosis, and in 6 animals with vein homografts fibrosis or scarring also occurred in time. He favors a vein graft, claiming that venous pressure is not great enough to maintain patency in an aortic graft for a time sufficient to allow the host to replace the graft. Holman and Steinberg [8] used an arterial graft successfully for superior vena caval obstruction, with the patient in good condition 10 months afterwards. The choice of an aortic graft was made in our case because we felt it would provide a more adequate dependable channel for both the venous flow on the left side and the back-flow from the right.

SUMMARY

A patient who had had a left radical mastectomy developed distressing symptoms from venous occlusion in the mediastinum three years later. This was at first attributed to pressure from metastatic lymph nodes, but angiography disclosed obstruction within the left innominate vein. Exploration of the mediastinum disclosed perivenous fibrotic constriction and thrombotic occlusion of the left innominate vein and complete fibrosis of the right. Complete relief of symptoms followed the replacement of the constricted segment of left innominate vein by a preserved aortic graft. At the time of writing, this new channel has functioned adequately for three months.

ADDENDUM

The patient was examined and found to be in good health 14 months after operation.

968 Fisher Bldg. (2) (Dr. Reveno).

[7b] Klassen, K. P., in discussion on Scannell and Shaw.[5]

[7c] Gerbode, F. L., in discussion on Scannell and Shaw.[5]

[8] Holman, C. W., and Steinberg, I.: Treatment of Superior Vena Caval Occlusion by Arterial Graft: Preliminary Report, Clinical Notes, *J. A. M. A.* **155**: 1403 (Aug. 14) 1954.

SHUNT GRAFT WITH RESECTION FOR ANEURYSM OF ARCH OF AORTA

Herbert D. Adams, M.D., Boston

As our experience with resection and replacement with homologous graft of the abdominal aorta has increased, we have turned our attention to the possibility of the management of aneurysms at higher levels, such as the arch and the descending thoracic aorta. There is one important difference, however, that makes resections of the arch and thoracic aorta hazardous. This is the fact that, with the exception of coarctation, with its massive collateral circulation, it is not possible to shut off the thoracic aorta for a period of time necessary to resect a complicated aneurysm and insert a graft without irrevocable damage to the spinal cord. Aneurysmorrhaphy or plastic sacculectomy, maintaining a functional channel through the aorta during these procedures, has been accomplished in some cases, but in many of these it is fraught with great danger except in the smaller, readily mobilized saccular type. There is the constant danger, during the mobilization and manipulation of the sac, of breaking off the thrombotic material, which may be swept peripherally to block the abdominal aorta and produce irrevocable spinal cord damage. For this reason and others, therefore, it becomes necessary to establish a bypass shunt before proceeding to the actual resection of the large complicated aneurysms, particularly of the arch of the aorta.

A functioning shunt, utilizing a full-length homologous thoracic aorta, can be established by an end-to-side anastomosis with the ascending aorta proximally, employing a large Pott's clamp, and an end-to-side anastomosis with the descending thoracic aorta well below the aneurysm (fig. 1), using a smaller Pott's clamp. If the ascending aortic wall is badly diseased and friable and therefore dangerous to use for such an anastomosis, the left subclavian artery can be safely transected and an end-to-end anastomosis made with the graft proximally and an end-to-side anastomosis below the aneurysm as before (fig. 2). Once good flow is established through this shunt, clamps can then be applied proximal and distal to the aneurysm; the aneurysm can then be resected and the aortic ends closed. The homologous graft shunt remains as a permanent new aortic channel (fig. 3). We have recently applied, with success, these principles to a huge syphilitic aneurysm of the arch, which, in 1952, before we had considered using grafts for this purpose as just outlined, we had treated by combined wire pack and polyethylene wrapping.

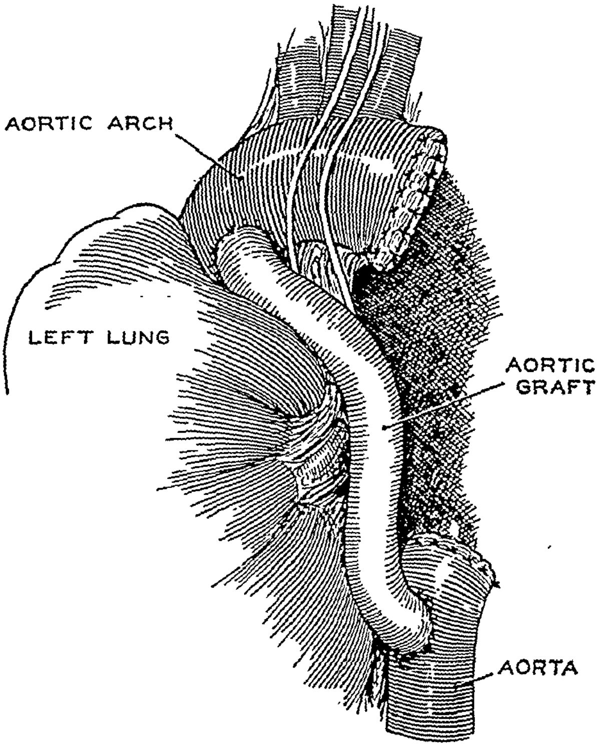


Fig. 1.—Aortic graft established between ascending aorta and aorta distal to aneurysm.

From the Department of Surgery, Lahey Clinic.

REPORT OF A CASE

A 56-year-old woman was first seen on April 30, 1952. She had had syphilis since 1941 and had received treatment until 1950. In October, 1950, she had her first attacks of dyspnea and chest distress, and her roentgenogram was reported as showing an aneurysm at that time. In February, 1951, she was given a course of penicillin treatment, but it was stopped because of a questionable reaction. In October, 1951, she began to have increasing occurrence of choking sensation, dysphagia, nervousness, and increasing chest pain and dyspnea. Roentgenograms taken at the clinic in April, 1952, showed a huge aneurysm of the arch of the aorta displacing the esophagus and trachea anteriorly, with erosion of the bodies of the fourth to the sixth thoracic vertebrae, inclusive. She was advised to have surgical intervention and was admitted to the hospital on June 14, 1952. On June 16, 1952, the aneurysm was exposed transthoracically, approximately 400 ft. of no. 30 alloy steel wire was packed into the aneurysm, and all of the exposed surfaces were covered with the irritative type of polyethylene. She did well, and her symptoms diminished after this procedure.

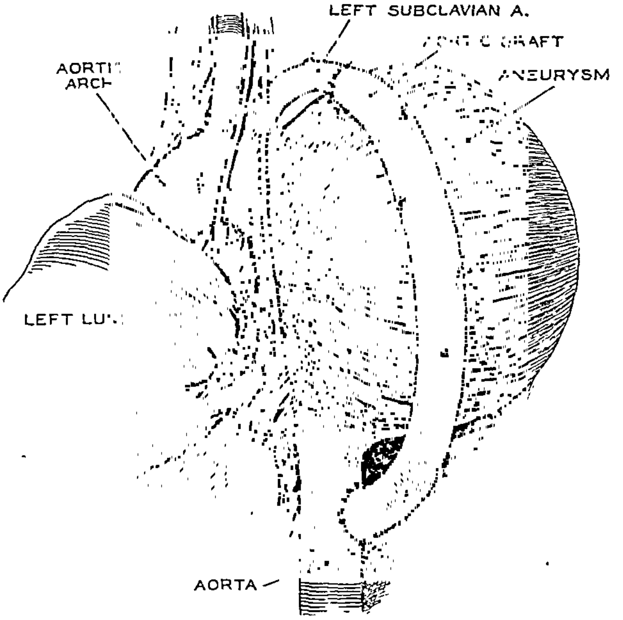


Fig. 2.—Functioning aortic graft established between left subclavian artery and aorta distal to aneurysm prior to resection of aneurysm.

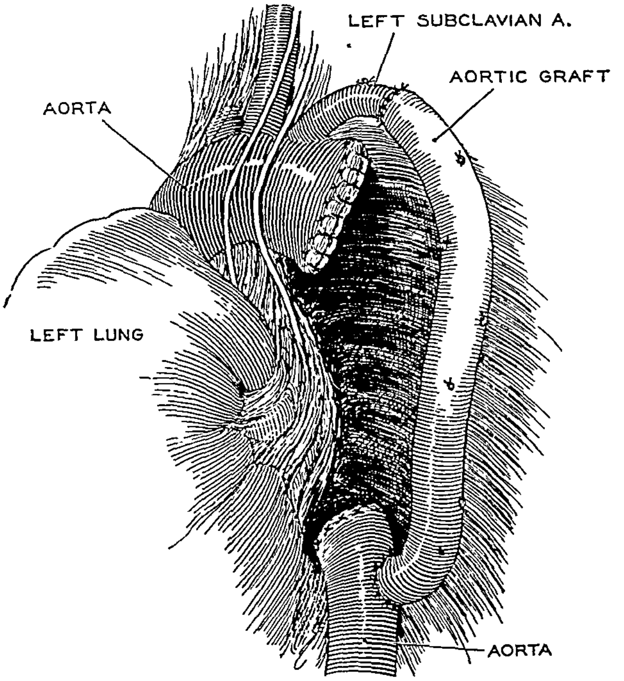


Fig. 3.—Relationship of aortic graft to aorta after resection of aneurysm.

In June, 1954, however, the patient returned because of the development of recurrent attacks of pain in the left upper thorax, with considerable nervousness, dyspnea, and general debilitation. Roentgenograms at that time showed increase in the size of the aneurysm; the trachea was displaced to the under surface of the sternum; and the bodies of the fourth to the sixth thoracic vertebrae were almost totally destroyed (fig. 4). She was readmitted to the hospital on July 5, 1954. On July 7, a shunt bypass using an homologous thoracic aorta was established, utilizing the subclavian artery, since attempts to utilize the ascending aorta proved inadvisable owing to the great friability of this structure at this level. With the functioning shunt established in this manner, the aneurysm was totally resected and the ends of the aorta closed, and the shunt continued to function satisfactorily. However, since this patient was an extremely poor risk because of advanced debility, weighing less than 100 lb. (45 kg.) and having greatly reduced cardiopulmonary function of many years' duration, she immediately began to have difficulty in elimination of bronchial secretions. The aneurysm had produced paralysis of the left recurrent nerve and, therefore, since she had such extreme difficulty in eliminating secretions, a tracheotomy was done. In spite of this, bilateral bronchopneumonia developed, and she finally died of pneumonia and pulmonary edema two weeks after operation. At postmortem examination, the cause of death was found to be bronchopneumonia. The graft was intact and had been functioning satisfactorily.

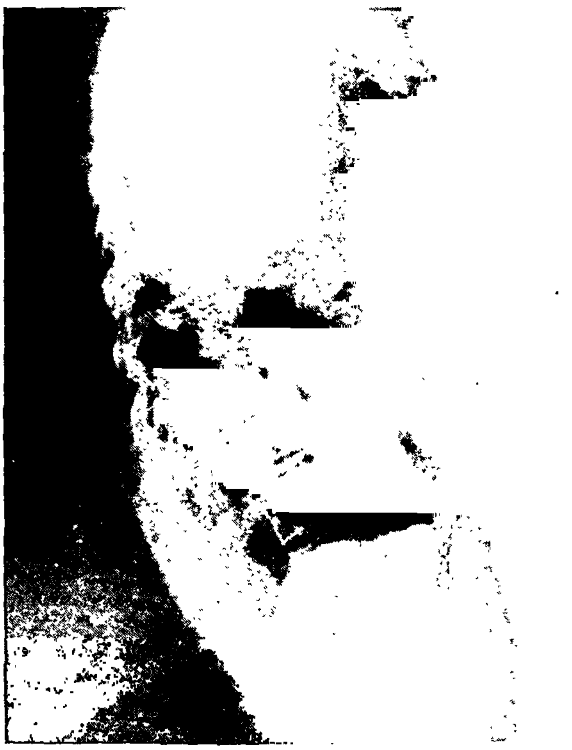


Fig. 4.—Lateral roentgenogram showing huge aneurysm of arch of aorta with erosion of upper thoracic vertebrae. Wire pack inserted at previous operation can be clearly visualized.

SUMMARY AND CONCLUSIONS

In the surgical management of aneurysms of the arch and thoracic aorta, it is technically possible to establish a shunt bypass utilizing an homologous thoracic aorta anastomosed proximally either to the ascending aorta or to the left subclavian artery and to resect large, complicated aneurysms in this region. It is our opinion that this is the method of choice in the treatment of aneurysms in the arch of the thoracic aorta, as has proved to be true in the management of aneurysms of the abdominal aorta.

ADDENDUM

Since this paper was submitted for publication, I have successfully employed this technique in an additional case at the United States Naval Hospital, Chelsea, Mass.

A man, aged 30, sustained a severe crushing injury to the chest. He was originally treated for severe shock and extensive hemothorax; he made good recovery and became asymptomatic. About a year later, on routine chest examination, the roentgenogram revealed a large mediastinal mass lying immediately below the arch of the aorta. At operation, a large, thin-walled, saccular, aortic aneurysm just distal to the subclavian artery was exposed. A shunt, utilizing an homologous aorta, was established around the aneurysm, extending from the subclavian artery to the thoracic aorta below the aneurysm. When this shunt was functioning, the aorta was cross clamped proximal to the aneurysm and close to the origin of the subclavian artery and also was cross clamped distal to the aneurysm but proximal to the distal end of the shunt. The aneurysm was resected, and an homologous aortic graft was anastomosed to the resected ends of the aorta. When the clamps were removed and circulation reestablished through the grafted aorta, the shunt was removed. This patient made a satisfactory, complete recovery without vascular or neurological complications.

605 Commonwealth Ave. (15).

PERIPHERAL NEURITIS FOLLOWING ISONIAZID THERAPY

APPEARANCE OF DUPUYTREN'S CONTRACTURE AND RAYNAUD'S PHENOMENON

Robert A. Hines, M.D., Madison, Wis.

Several articles have appeared describing the neurotoxic effects of isoniazid (isonicotinic acid hydrazide).[1] The disorder is primarily peripheral in distribution, with the stocking-and-glove type of sensory changes. If administration of isoniazid is continued, the symptoms increase in severity and extend to more proximal portions of the extremities. Motor symptoms tend to be mild. Reflex changes when present vary; hyperactivity to complete loss of the deep tendon reflexes have been described. If administration of the medicament is discontinued soon after the appearance of these symptoms, the symptoms have been found to disappear. In the more severe cases, the symptoms tend to persist. The B vitamins, excepting pyridoxine, have been used to counteract these reactions without notable effect. The studies of Biehl and Vilter[2] demonstrated increased urinary excretion of pyridoxine in cases of neuritis caused by isoniazid. The excretion of pyridoxine increased proportionately with the dosage of isoniazid. With high doses of isoniazid (20 mg. per kilogram of body weight), 40% of 20 patients developed peripheral neuritis, while in a similar group receiving a pyridoxine supplement neuritis did not occur.

During the past 18 months, there have been a number of cases of progressive neuritis at the Veterans Administration Hospital, Madison, Wis. The patients were given isoniazid in the usual dosage of 3 to 5 mg. per kilogram of body weight. The occurrence of disabling contractures and Raynaud's phenomenon in three of these cases is the basis of this report.

REPORT OF CASES

CASE 1.—A 61-year-old Negro male was admitted to the hospital on March 31, 1953. Constitutional symptoms of pulmonary tuberculosis had been present since October, 1952. He was not well oriented mentally and developed paranoid ideas while in the hospital. He had far-advanced pulmonary tuberculosis with cavitation. Initially, treatment consisted of streptomycin, 1 gm. twice a week, and aminosalicylic acid, 12 gm. daily. He was unable to tolerate the latter, and, on April 17, 1953, therapy with isoniazid, 100 mg. three times a day, was begun. Within two months, severe pains developed in the hands and feet. The isoniazid was not given for 20 days, and there was a slight improvement. When it was again given neuritic symptoms returned. The dosage was reduced to 50 mg. three times a day, and that dosage continued until the patient was transferred to a hospital for mental diseases on April 22, 1954. While receiving a reduced dosage of isoniazid, the patient continued having neuritic pains. Tender swellings appeared in all fingers, suggesting rheumatoid arthritis. During the next several months, marked flexion contractures developed (fig. 1), in spite of salicylates, splints, and vigorous physical therapy.

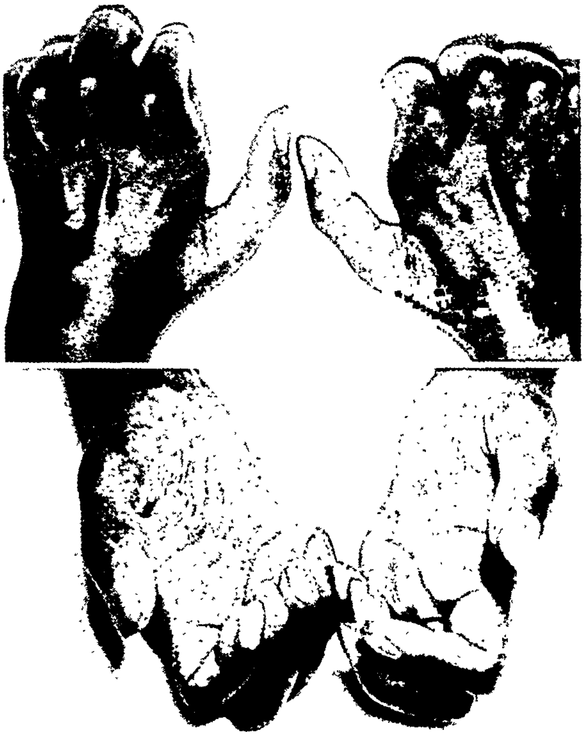


Fig. 1.—Severe flexion contractures, resembling Dupuytren's, with tendon thickening in the distal portion of palms of 61-year-old man (case 1) after use of isoniazid in treatment of tuberculosis.

CASE 2.—A 63-year-old white male had far-advanced pulmonary tuberculosis and marked emphysema. His pulmonary tuberculosis was complicated by arteriosclerotic heart disease with auricular fibrillation. He was treated with isoniazid, 100 mg. three times a day, and aminosalicylic acid, 12 gm. daily. Within two months, bilateral muscular weakness in the arms

---

From the Veterans Administration Hospital.

[1] Gammon, G. D.; Burge, F. W., and King, G.: Neural Toxicity in Tuberculous Patient Treated with Isoniazid (Isonicotinic Acid Hydrazide), A. M. A. Arch. Neurol. & Psychiat. 70:64 (July) 1953. Lubing, H. N.: Peripheral Neuropathy in Tuberculosis Patients Treated with Isoniazid, Am. Rev. Tuberc. 68:458 (Sept.) 1953.

[2] Biehl, J. P., and Vilter, R. W.: Effect of Isoniazid on Vitamin B_6 Metabolism: Its Possible Significance in Producing Isoniazid Neuritis, Proc. Soc. Exper. Biol. & Med. 85:389 (March) 1954.

was noted, although the patient did not complain of pain. At this time, there was some atrophy of the intrinsic muscles of the hands. Soon stiffness of the fingers was noted, followed by flexion contractures. Sensory examination now revealed areas of hypesthesia in the hands and forearms. The skin of the hands was cool and showed trophic changes and patchy areas of cyanosis.

Case 3.—A 48-year-old white male was admitted to the hospital on July 21, 1953, with pulmonary tuberculosis. Constitutional symptoms were present for nine months, associated with a 55 lb. (25 kg.) weight loss. Initially he was treated with streptomycin, 1 gm. twice weekly, and aminosalicylic acid, 12 gm. daily. Starting on Aug. 15, 100 mg. of isoniazid was given three times a day because of severe gastroenteritis from aminosalicylic acid. Five weeks later the patient complained of numbness and tingling in the feet and hands. The use of isoniazid was discontinued for 10 days without improvement. Therapy with the drug was resumed, and three months later trophic changes appeared in the skin of the hands, followed by cold sensitivity with cyanosis. In January, 1954, stiffness of the fingers occurred and was followed by thickening along the palmar tendon sheaths and flexion contractures of both little fingers (fig. 2). Use of isoniazid was discontinued on May 27, 1954, and administration of pyridoxine, 100 mg. daily, begun. To the time of writing there has been little change in symptoms or signs.

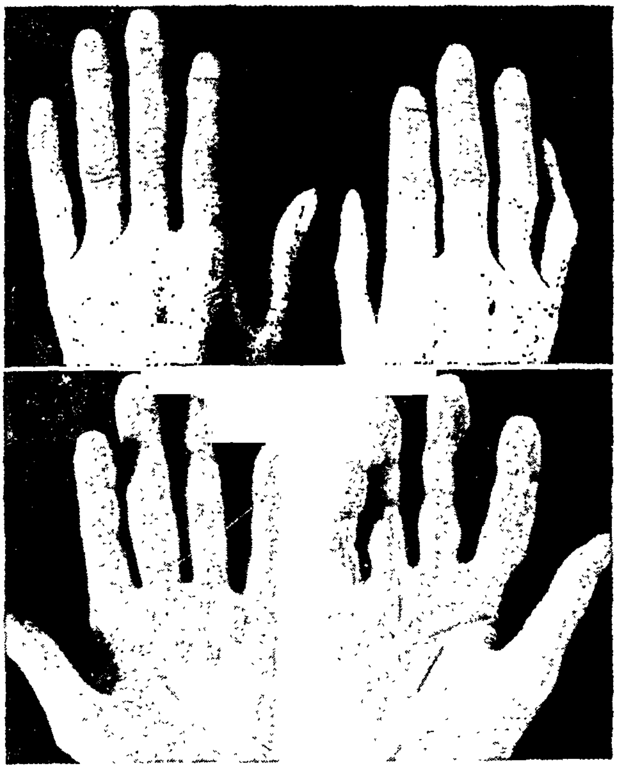


Fig. 2.—Hands of 48-year-old man (case 3) after administration of isoniazid in treatment of tuberculosis. Contracture is most marked in the little fingers. Thickening is present about the common flexor tendon sheath in both palms. A patchy cyanosis is present in the distal portions of the fingers.

COMMENT

The common physical findings in these patients were hypesthesia, cyanosis, trophic changes, and contractures. X-rays of the hands of the patient in case 2 were suggestive of early changes of rheumatoid arthritis, while those in the patient in case 3 revealed only slight generalized osteoporosis. No other evidence was found to substantiate a diagnosis of rheumatoid arthritis in this case. The absence of sensory complaints of the patient in case 2 was unusual, but the end-results were rather typical of a peripheral neuritis. The presence of Dupuytren-like contractures in these cases is associated with severe neurotrophic and Raynaud's phenomenon. The Raynaud's phenomenon with coldness and cyanosis was considered secondary to vasospasm. This has been described as occurring in peripheral neuritis.[3] It is presumably due to inhibition of axon reflexes from peripheral nerves supplying vasodilator impulses.

The occurrence of Dupuytren's contractures in neurovascular disturbances is well known. Under the heading of "reflex dystrophy of the upper extremity," a variety of contractures has been described.[4] In this condition one encounters a pathological process arising in various locations, setting up a reflex discharge of sympathetic impulses to the upper extremity. This leads to the development of vascular disturbances and contractures. The other explanation would be a direct stimulation of the autonomic nervous system as postulated by Selikoff, Robitzek, and Ornstein.[5] They based their conclusions on the findings of dizziness, insomnia, constipation, and urinary retention occurring in several patients who were receiving 1-isonicotinyl-2 isopropyl hydrazine (Marsilid). Fisher and others [6] also demonstrated evidence of temporary vasospasm occurring in 5 of 23 patients receiving isoniazid and 1-isonicotinyl-2 isopropyl hydrazine.

SUMMARY

Three patients being treated for tuberculosis developed Dupuytren-like contractures and Raynaud's phenomenon following isoniazid neuritis. It is believed that these changes are caused by disturbances of a neurovascular nature developing secondary to the use of isoniazid.

2500 Overlook Terrace.

---

[3] Edwards, E. A.: Varieties of Digital Ischemia and Their Management, New England J. Med. **250**: 709 (April 29) 1954.

[4] Steinbrocker, O.; Spitzer, N., and Friedman, H. H.: Shoulder-Hand Syndrome in Reflex Dystrophy of Upper Extremity, Ann. Int. Med. **29**: 22 (July) 1948.

[5] Selikoff, I. J.; Robitzek, E. H., and Ornstein, G. G.: Toxicity of Hydrazine Derivatives of Isonicotinic Acid in Chemotherapy of Human Tuberculosis: Preliminary Report, Quart. Bull. Sea View Hosp. **13**: 17 (Jan.) 1952.

[6] Fisher, M. M., and others: Isonicotinic Acid Hydrazide and Its Derivatives in Tuberculosis: An Evaluation of the Side-Effects in Relation to Peripheral Circulation: Preliminary Report, New York J. Med. **52**: 12 (June) 1952.

ASPIRATION BIOPSY OF THE KIDNEY

Gerald W. Schwiebinger, M.D.
and
Clarence V. Hodges, M.D., Portland, Ore.

There are many instances in diagnostic medicine and also in clinical research when correlation of renal function and a clinical syndrome with the exact renal histopathology would be valuable indeed. Needle biopsy of the liver, the spleen, the prostate, and the lung have been performed because of a similar need in other fields. Needle biopsy of the kidney was first performed by Iversen and Brun in 1951.[1] Since then, several reports [2] of its use have appeared in the literature. It is the purpose

---

From the Department of Surgery, University of Oregon Medical School.

[1] Iversen, P., and Brun, C.: Aspiration Biopsy of the Kidney, Am. J. Med. **11**: 324-330, 1951.

of this paper to report our experiences with this technique.

MATERIALS AND METHODS

Materials used were: the Turkel liver biopsy needle, consisting of an outer needle and stylet, 11 gauge, 100 mm. long, with an adjustable guard control, and an inner trephine needle and stylet, 13 gauge, 150 mm. in length; 20 cc. syringe for the aspiration biopsy; 10 cc. syringe for procaine infiltration; one no. 18 needle, a no. 25, and a long no. 22 needle; no. 15 Bard-Parker scalpel blade and handle; one curved Kelly hemostat; large sterile drape with a central aperture; and prep sponges. In addition, one needs 1% procaine, a skin disinfectant, and a wide-mouthed specimen jar with formaldehyde for immediate fixation of the specimen. A long no. 16 needle with a serrated tip and obturator is included for kidney biopsy in children.

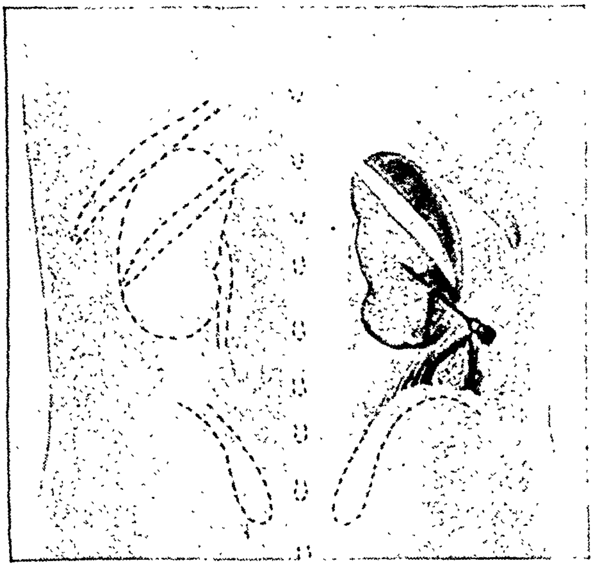


Fig. 1.—Topographic anatomic relations of kidneys.

An intravenous or retrograde pyelogram is obtained, if possible, for accurate localization of the kidneys and to rule out malposition or absence of the kidney. On the pyelogram we measure the relationship of the inferior pole of the kidney to the vertebrae and to the 12th rib (fig. 1 and 2). The right kidney is preferred because of its lower position and the presence of the spleen on the left; biopsy of the left kidney has been done, however, without incident. In the average individual, six fingerbreadths are measured from the midline and two fingerbreadths inferior to the 12th rib at that point. This avoids the intercostal arteries. The biopsy is usually done at the bedside, with the patient sitting erect and the legs over the edge of the bed. The selected site is prepared with an antiseptic solution, a procaine skin wheal raised, and a sterile drape placed about the field. After deep infiltration of the area, a small skin incision is made. The trocar is next introduced. Our initial misses resulted from angling the needle too much medially or too far cephalad. A satisfactory rule of thumb to follow is to direct the needle perpendicular to the curve of the flank and in the horizontal plane. As the trocar advances through the fascial layers, a definite snap is usually felt as the lumbodorsal fascia is penetrated. Almost immediately the needle will encounter a solid mass, presumably kidney. After several biopsies have been performed, this is more readily recognized. To the exploring needle this has the consistency of a soft rubber ball and moves against the needle with inspiration. The needle is impinged into the kidney substance for a few millimeters only. If the needle is in the kidney, the hub will traverse a distance of 2.5 to 5.1 cm. with each respiratory cycle. If this does not occur, the needle is probably not in the kidney and a reinsertion is indicated. The obturator is now removed, and the inner needle with the serrated tip is inserted until the kidney is felt. The 20 cc. syringe is next attached and negative pressure applied. While maintaining suction on the syringe with the right hand, the needle is advanced and rotated simultaneously for a distance of 3 to 5 cm. (fig. 3). While still maintaining negative pressure in the syringe, the needle and cannula are removed together. As soon as the needle tip reaches the skin, a sliver of renal tissue will be aspirated into the syringe. This varies in size from a small fragment to enough tissue for a good biopsy measuring 4 cm. and including renal capsule and an entire section of cortex and medulla with a small fragment of pelvis epithelium (fig. 4). The needle is detached and the specimen expelled into the formaldehyde specimen jar.

RESULTS

Our results varied with the number of procedures performed. Initially our success was only 30%, but later it ranged up to 80% in the last series of 10 biopsies. A total of 44 biopsies was performed, with a successful biopsy being obtained in 24, an over-all percentage of success of 54.5%. Success was determined by obtaining a large enough specimen so that a satisfactory histological study could be made. Our percentage of success

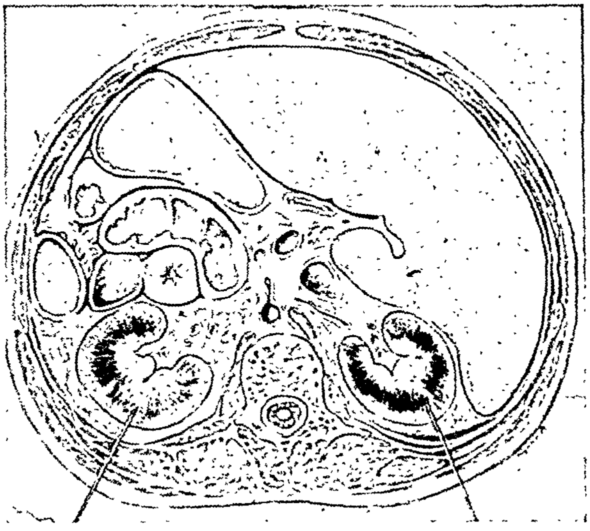


Fig. 2.—Cross sectional anatomic relations of kidneys with kidney biopsy needle in place.

---

2. (*a*) Parrish, A. E., and Howe, J. S.: Needle Biopsy as an Aid in Diagnosis of Renal Disease, J. Lab. & Clin. Med. **42**: 152-157, 1953. (*b*) Kark, R. M., and Muehrcke, R. C.: *Biopsy of Kidney in Prone Position*, Lancet **1**: 1047-1049, 1954. (*c*) Bjørneboe, M., and others: Nephrotic Syndrome: Histological Changes Illustrated by Means of Biopsy of the Kidney, Acta med. scandinav. (supp. 266) **142**: 233-248, 1952. (*d*) Greenwald, H. P., Bronfin, G. J., and Auerbach, O.: Needle Biopsy of the Kidney: Report of 5 Cases of Multiple Myeloma, Am. J. Med. **15**: 198-206, 1953.

compares favorably with that of Iversen and Brun,[1] who reported success in 42 of 80 biopsies, and with Parrish and Howe,[2a] who reported 29 successful biopsies in 50 attempts. Kark and Muehrcke,[2b] however, recently reported 48 successful biopsies in 50 attempts using the Vim-Silverman needle with the patient in the prone position. Our unsatisfactory biopsies included the finding of only fatty tissue, fibrous tissue, liver (in three), insufficient renal tissue for diagnosis, or no tissue being obtained.

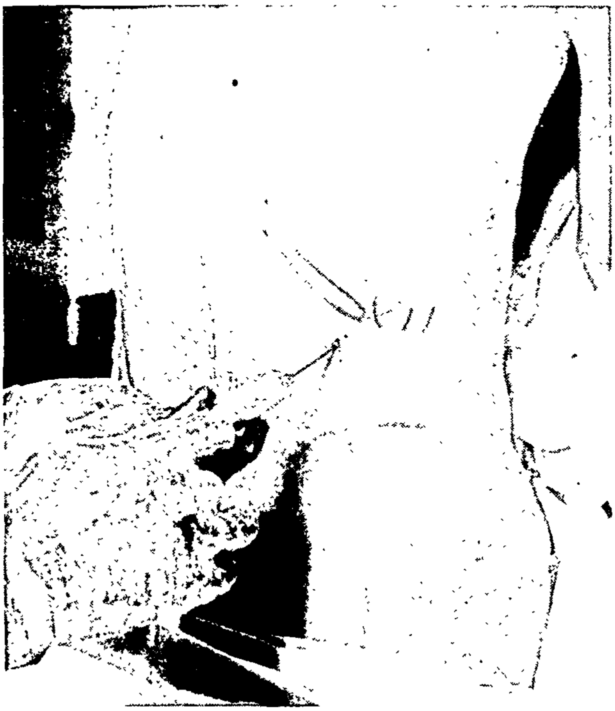


Fig. 3.—Biopsy needle is advanced and rotated with negative pressure maintained within syringe.

COMPLICATIONS

A transient hematuria seemed to be a common finding, lasting up to 24 hours. No serious bleeding was encountered; however, a perirenal hematoma necessitating surgical intervention is described by Parrish and Howe. The discomfort to the patient is usually limited to a short, sharp pain, deep within the loin, at the time of biopsy. Some patients have noted persistent mild discomfort for up to 12 hours. One patient described severe flank pain radiating into the right testis. Nausea and vomiting have also been noted but are unusual. Other theoretical complications, so far not encountered, would seem to include perforation of an intra-abdominal viscus, dissemination of a tuberculous or malignant process, infection, rupture of a renal cyst, or stimulation of a neurovascular renal reflex. Contraindications arrived at from these real and theoretical complications include a bleeding tendency, suspected malignancy or tuberculosis, or a suspected perinephric abscess. Excess obesity or an uncooperative patient also contributes to failure.

REPORT OF CASES

The following cases are three examples in which renal aspiration biopsy was used as an additional aid during urologic study.

Case 1.—A 76-year-old male was admitted to the hospital with a two year history of chronic prostatism culminating in acute urinary retention. Physical examination revealed hypertension with blood pressure of 194/90 mm. Hg, arteriosclerotic heart disease, chronic bronchitis, and benign prostatic hypertrophy. Urinalysis revealed 1+ albuminuria, 3+ hematuria, 2+ pyuria, and granular casts. The blood urea nitrogen was 27 mg. per 100 cc. To evaluate the degree of this patient's chronic renal damage, renal biopsy was performed. The specimen consisted of a piece of tissue 1.5 cm. in length and uniformly 2 to 3 mm. in diameter. Histologically there were noted large areas of scarring, tubular and glomerular atrophy, and scattered areas of chronic inflammation. The diagnosis was chronic pyelonephritis. The patient had an uneventful transurethral prostatectomy.

Case 2.—An 81-year-old male with diabetes was admitted to the hospital with acute urinary retention. Physical examination revealed moderate hypertensive cardiovascular disease, blood pressure of 180/80 mm. Hg, and benign prostatic hypertrophy. The urinalysis revealed 1+ albuminuria, 4+ pyuria, and bacilluria. The blood urea nitrogen was 19 mg. per 100 cc. Because of the patient's diabetic history and chronic urinary tract obstruction, it was thought that evaluation of the patient's renal histology would be prognostically helpful. The specimen consisted of a tubular segment 2.5 cm. in length. Histologically, multiple foci of scarring were seen in the cortex, many atrophic and other dilated tubules were identified, and varying degrees of chronic inflammation were found. Diagnosis was chronic pyelonephritis. The patient had an uneventful transurethral prostatectomy.

Case 3.—A 71-year-old male was admitted with symptoms of long-standing prostatism and a residual urine of 475 cc. Physical examination showed moderate arteriosclerotic heart disease, blood pressure of 180/92 mm. Hg, emphysema, and benign prostatic hypertrophy. Urinalysis revealed 2+ albuminuria, 4+ pyuria, and numerous bacteria. The blood urea nitrogen was 32 mg. per 100 cc. Preoperatively urethral catheter drainage was instituted; however, the uremia was progressive to a maximum blood urea nitrogen of 63 mg. per 100 cc. Renal biopsy revealed numerous foci of chronic inflammation, hyalinization of vessels, and marked scarring with atrophy and dilatation of the tubules. Diagnosis was chronic pyelonephritis. Because of the severe degree of renal damage, nonsurgical management was elected, and the patient was discharged but catheter drainage was continued at home.

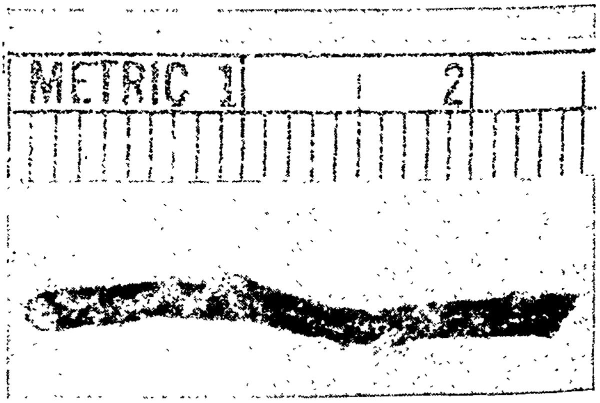


Fig. 4.—Approximate size of good aspiration biopsy.

COMMENT

Although our series and experience with renal aspiration biopsy are much too meager to draw any statistically significant conclusions, certain impressions were obtained. The value of obtaining exact histopathological information in chronic renal disease or in studying the milder or the acute forms of renal disease seemed self-evident. However, after having the procedure available, many previously accepted renal situations appeared in which biopsy was an appealing adjunct. The list includes evaluation of renal disease in the hypertensive patient, exact diagnosis in the patient with nephrosis, the degree of nephropathy associated with the patient in the diabetic state, renal disease in the patient with eclampsia, and, as in our cases, the marked but infrequently emphasized degree of chronic pyelonephritis in chronic urinary tract obstruction. Immediate and accurate diagnosis in acute renal insufficiency seemed to be a particularly fertile field for both prognosis and clinical research.

The procedure is simple, technically, although accuracy is not yet predictable, and requires only the usually available biopsy instruments. We prefer to use the Turkel needle and an aspiration type of biopsy, but acceptable modifications of the Vim-Silverman needle are now also available. A sufficient degree of skill can soon be acquired by anyone who will briefly review the anatomy of the region. It is safe for the patient; the number of complications reported in over 250 biopsy attempts now in the literature is negligible. Perirenal or retroperitoneal hemorrhage was anticipated but has not occurred. Autopsies on patients who had had renal biopsy and who had died for unrelated causes were performed in three instances. Bleeding at the puncture site in all cases was minimal and, in one, difficult to detect. The potential hazards must be borne in mind, however, and the procedure not used indiscriminately. The greatest drawback at the present time with the technique described has been the unpredictability of success. Familiarity with the procedure progressively improved our results, and with the most recent biopsies success is now anticipated in 80% of the cases attempted. When tissue is obtained, the specimen is remarkably adequate and our pathologists have not complained about insufficient tissue for diagnosis. Damage to the kidney by the biopsy is also minimal and, in those instances where we have been fortunate enough to see the kidney subsequently, the biopsy tract is recognized only as a small, dark red streak (fig. 5).

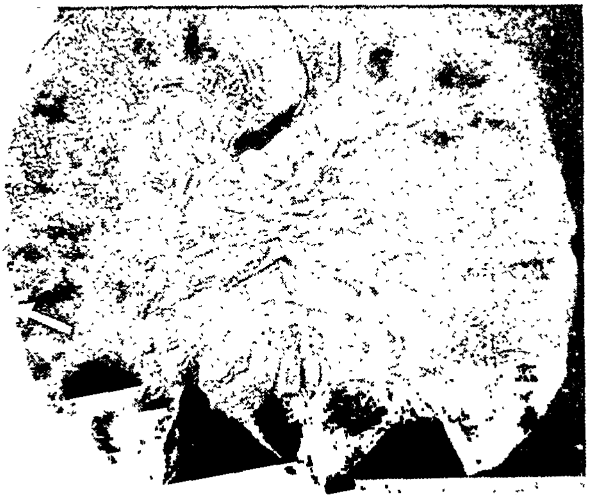


Fig. 5.—Needle tract (arrow) in dissected kidney of patient on whom aspiration biopsy was performed and who died from unrelated causes.

CONCLUSION

Renal aspiration biopsy is a valuable practical adjunct in the treatment and study of renal disease. It should assume its place with biopsy of other organ systems of the body and be used with caution but not fear when indicated.

1329 S. W. Taylor St. (Dr. Schwiebinger).

A COLOSTOMY IRRIGATOR OF IMPROVED DESIGN

Eugene H. Weissenberg, M.D.
and
H. M. Thompson, Jefferson Barracks, Mo.

While it is desirable that a colostomy be irrigated daily, the unpleasant nature of the procedure, with the devices at present available, causes many patients to postpone it whenever possible. Employing the ordinary irrigator, a mixture of feces and water may be expelled so forcibly that its confinement to a receptacle is exceedingly difficult. Even if the operation is performed in a bathtub, a distasteful clean-up must necessarily follow. To make this necessary operation less unpleasant, we have modified an applicator used mainly in Europe for colonic irrigation in a bathtub so that a patient himself can manipulate it with no chance of soiling and with a minimum of clean-up afterwards.

Our new device is made of clear plastic and consists of two major parts that join together. A plastic ring is held firmly against the abdomen by a belt attached to two ear-like projections. An interlocking funnel device, also of plastic, fits this ring. The funnel is continuing with a 1 in. (2.5 cm.) outlet tube set at a right angle. A hole 1½ in. in diameter in the side of the funnel is fitted with a rubber stopper through which passes a smaller tube. To the inside of this tube is attached a rubber catheter (16 or 18 F.), while the outside of the same tube bears a rubber hose connected to a hot water bottle and provided with a shut-off clamp (fig. 1).

PROCEDURE OF IRRIGATION

The patient fills the hot water bag and then connects it to the proper rubber tube, which is clamped off. He puts the filled hot water bag on a little stool next to the toilet. While standing, he fastens the plastic ring firmly to his abdomen by pulling the belt tight. Then he sits down to check whether the belt is too tight for the sitting position. If so, he loosens the belt slightly and stands up again. The funnel component is next locked into the ring with a slight turn. Still standing, he inserts the catheter through the hole in the funnel and into the colostomy, pushing it until he can close the hole in the side of the funnel with the stopper to which the catheter

---

From the Veterans Administration Hospital, Jefferson Barracks 23, Mo. Dr. Weissenberg is now at the Veterans Administration Hospital, Sheridan, Wyo.

Reviewed in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the author are the results of his own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

The new all-plastic irrigator can be obtained on order from Technical Enterprises, P. O. Box 456, St. Louis 12.

tubing is fastened. The patient now sits down on the toilet seat so that the plastic angular tube is between his *thighs pointing into the bowl. While seated, he connects the hot water bottle to the outside end of the small* tube and puts the water bottle upon one thigh. The clamp is opened and the rubber bag pressed against the thigh with one hand, causing the water to enter the colostomy (fig. 2). The patient lifts the hand off the bag and closes the clamp when he does not want more water to enter his colon. Later, when water and colon contents are expelled, they are carried through the funnel and the large right angle tube directly into the toilet bowl. The patient may let more water run into his colon by opening the clamp and again exerting pressure upon the rubber reservoir. Closing the clamp, the pa*tient then rests upon the toilet seat until he feels that no* more watery feces will be expelled. This may require 20 minutes to an hour and a half. Finally, the patient disconnects the water bag and unlocks the funnel component. With the rubber stopper still wedged in the hole, the catheter is withdrawn from the colostomy as the funnel is removed from the plastic ring and put into a basin. Then the belt is loosened and the ring, too, is put into the basin. All parts are then washed in running water and may be dried and put away or stored under an antiseptic solution.

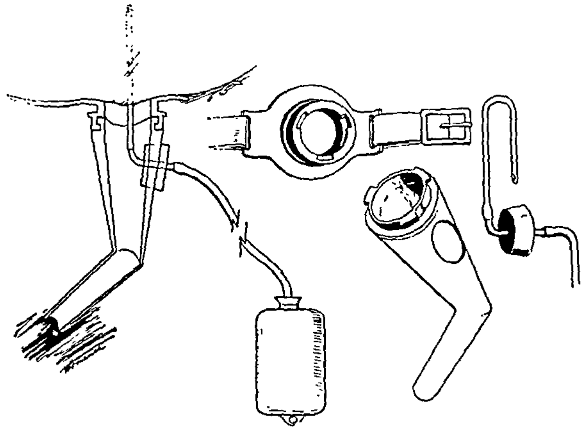


Fig. 1.—Parts of colostomy irrigator.

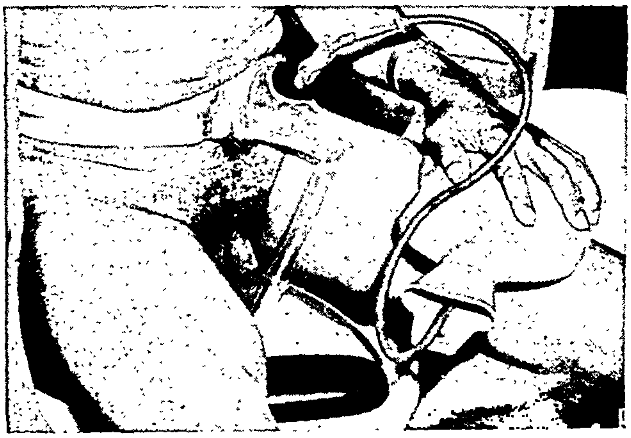


Fig. 2.—Patient using the improved colostomy irrigator.

This improved colostomy irrigator enables a patient to care for his toilet activities with a minimum of effort and inconvenience. It can also be used by the nursing staff while the patient still occupies a hospital bed, the principal difference being that the large drain tube must empty into a bedpan.

FULL-THICKNESS SKIN GRAFT IN THE CLOSURE OF A DEFECT OF THE THORACIC WALL

W. David Dunavant, M.D., Memphis, Tenn.

A free graft of full-thickness skin will live when sutured into a defect in the chest wall and the lung reexpanded. As far as we can ascertain from the literature this is the first time a full-thickness skin graft has been used to close a defect in the chest wall without placing the graft directly on the lung. Defects in the chest wall may result from radical resection of tumors or from trauma. Carcinoma of the breast or lung invading the chest wall or recurrent disease may require resection of a portion of the chest wall. If the defect extends into the pleural cavity the problem of an open pneumothorax exists and a flap of tissue must be made available to form an airtight closure.

Various methods have been devised in the past to repair defects in the chest wall. The opposite breast, muscle, and fascia were used by Maier [1] and Pickrell.[2] Free grafts of fascia lata were employed by Watson [3] and Mayer.[4] The pericardium was sutured into a defect in the chest wall and covered by split-thickness skin graft by Pickrell.[5] Tantalum plates have been used by Effler *and Blades [6] and found to be unsatisfactory because they* moved, became loose, and sloughed out or had to be removed. Morrow [7] has used tantalum plates successfully in dogs. Tantalum mesh has also been used but may undergo fragmentation due to constant movement of the thoracic cage. Although a full-thickness skin graft would offer little stability, it does offer the surgeon a means by which an airtight closure can be obtained in those defects where no other tissue is readily available. The following case report presents such a patient in whom the other breast or skin flaps could not be used for closure because of such a wide excision of skin and a portion of the chest wall.

REPORT OF A CASE

A 59-year-old Negro woman was seen in the outpatient department of the John Gaston Hospital on April 30, 1951, with the complaint of an ulcerating lesion on the right breast with

---

From the Department of Surgery, University of Tennessee School of Medicine and John Gaston Hospital.

[1] Maier, H. C.: *Surgical Management of Large Defects of Thoracic* Wall, Surgery **22**: 169-178, 1947.

[2] Pickrell, K. L.; Kelly, J. W., and Marzoni, F. A.: Surgical Treatment of Recurrent Carcinoma of Breast and Chest Wall, Plast. & Reconstruct. Surg. **3**: 156-172, 1948.

[3] Watson, W. L., and James, A. G.: Fascia Lata Grafts for Chest Wall Defects, J. Thoracic Surg. **16**: 399-406, 1947.

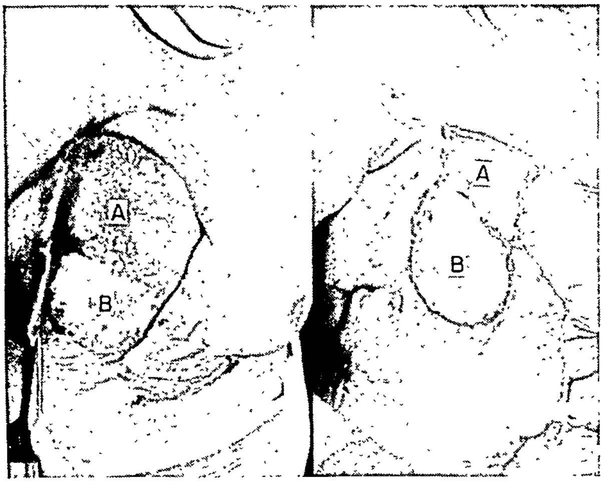
[4] Mayer, L.: Chondro-Sarcoma of Rib: Five Year Cure After Resection, J. Mt. Sinai Hosp. **7**: 467-470, 1941.

[5] Pickrell, K. L.; Baker, H. M., and Collins, J. P.: Reconstructive Surgery of Chest Wall, Surg., Gynec. & Obst. **84**: 465-476, 1947.

[6] Effler, D. B., and Blades, B.: Function of Thoracic Surgery Centers in World War II, Am. J. Surg. **72**: 319-330, 1946.

[7] Morrow, A. G.: The Use of Tantalum Gauze in the Closure of Full-Thickness Defects in the Chest Wall: Experimental Study in Dogs, Surgery **28**: 1016-1021, 1950.

constant pain. The patient was well until two years before, when she fell and struck her right breast. Following this a small lump was noticed in the lower portion of the breast that soon became asymptomatic. Four months ago the mass began to enlarge and became painful, especially when clothes would rub the lesion. She applied several types of skin paints and salves to the lesion, including iodine and carbolic acid. One month before admission the lesion became ulcerated. On April 28, 1951, she saw her physician for the first time, who referred her to the outpatient department of the John Gaston Hospital where a biopsy of the lesion was performed and revealed adenocarcinoma. On admission examination revealed an elderly, obese woman who did not appear acutely ill. On examination the head and neck were normal. She had hypertension (blood pressure 190/100 mm. Hg) with no evidence of decompensation or other cardiovascular disease. Heart and lungs were normal. There was a firm, hard mass measuring 8 cm. (about 3 in.) in diameter located at the inferior margin of the right breast at the junction of the chest wall. There was an ulceration at the lower border of the mass measuring 1.5 cm. (0.6 in.) in diameter. The mass and area of induration around the mass were firmly attached to the underlying chest wall. There were no supraclavicular nodes palpable, but one node 1 cm. (0.4 in.) in diameter could be felt in the axilla. The rest of the examination was negative.



Left, photograph of the wound on the 14th postoperative day showing *A,* granulating wound on the chest wall to be covered with a split-thickness graft and *B,* full-thickness skin graft covering the defect in the chest wall. *Right,* photograph of the wound on the 30th postoperative day showing *A,* split-thickness skin graft on the chest wall and *B,* full-thickness skin graft covering the defect in the chest wall and covering the lung.

Laboratory studies revealed a red blood cell count of 4,200,000 per cubic millimeter, hematocrit of 24%, and hemoglobin level of 9 gm. per 100 cc. The white blood cell count was 12,450 per cubic millimeter with a normal differential. The urinalysis revealed numerous white blood cells and gram-negative rods. The patient was placed on a high-protein, high-calorie diet supplemented with vitamins. She was given several transfusions and placed on penicillin and streptomycin therapy, with wet dressings applied to the ulcerated lesion. The ulcerated area became clean, regressed in size, and appeared to be healing.

She was operated upon on May 25, 1951, and a radical mastectomy with excision of a portion of the chest wall was performed. After dissection of the axilla, the pectoral muscles were dissected from the chest wall back to the site of the tumor. It was felt that the tumor was adhered to the intercostal muscles and ribs with possible invasion of the chest wall. A section of the chest wall was resected including the fifth and sixth ribs with the underlying pleura from the sternum laterally for a distance of 6 in., 2 in. beyond the gross extent of the tumor. The pleural cavity and lungs were then inspected and found to be free of gross metastasis or nodes. There was no gross evidence of disease along the internal mammary vessels. A full-thickness graft of skin was then obtained from the lateral flap at the upper end of the incision. All subcutaneous tissue was removed from the graft. With the lung collapsed the graft was sutured around the defect, making the pleural cavity airtight. A catheter was placed in the pleural cavity and was brought out through a stab wound lateral to the operative site. The entire wound was then closed as much as possible by swinging the other breast over and closing the skin flaps under tension. There was an area about 3 in. left open, part of the graft being visible. After the wound was closed the catheter was aspirated and the lung reexpanded. The catheter was then removed. A massive pressure dressing was then applied, and the patient was sent to the room in good condition.

Microscopic examination revealed adenocarcinoma with two positive nodes and extension into the deep pectoral fascia but no involvement of the ribs or intercostal muscles. The patient did well postoperatively with no respiratory difficulty, and the chest remained clear on x-ray. On the seventh postoperative day there was necrosis of the skin edges and sloughing and separation of the wound; however, at this time the graft was completely visualized and appeared to be viable. By the 14th postoperative day the open granulating wound was clean and the skin graft viable and intact (see figure, *left*). The chest wall was stable; however, the graft moved with respiration, the lung apparently having become adhered to the graft producing a source of blood supply and a viable graft. On the 24th postoperative day a split-thickness skin graft was placed on the granulating wound of the chest wall and all wounds were healed one month after surgery (see figure, *right*). This patient did well until May, 1953, when she was seen with metastasis of the lung and spine. She died in June, 1953.

COMMENT

A defect in the chest wall was closed with a full-thickness skin graft, and no instability of the chest resulted. The relatively thin covering of the lungs by the graft produced little protection; however, the patient wore a padded prosthesis with no difficulty as long as she lived. We do not know how large a defect could be covered with such a graft and the chest wall remain stable. However, it was no problem in this patient and from observation of this patient one would think that a defect twice this size could be covered with a skin graft without jeopardizing the stability of the chest.

899 Madison Ave.

Adrenal Steroid Therapy.—Although a vast number of clinical observations on the effects of... hormonal agents have been made, there is as yet little or no insight into the mechanisms by which these effects are produced and their site of action. It is postulated that there must be some fundamental action on cellular metabolism, which may lead to an alteration in the mechanism of response of the cells to the many unknown factors which lead to disease. Browne's philosophic concept of the "iceberg" theory of disease is a useful one: that, like the iceberg, many organism's responses to disease are similar and submerged below the surface; that the symptoms and signs which we recognize as disease entities are the visible peaks of the iceberg; and that the adrenal cortical hormones tend to alter or "melt away" the submerged portion, causing the visible peak, which is recognized as a disease, to disappear below the surface. As our observations increase we are repeatedly struck by the evidence of progression of the disease in spite of clinical remission. This is particularly true in the mesenchymal diseases, such as rheumatoid arthritis, rheumatic fever and lupus. This progression suggests that one "deviates" the disease but does not alter its basic course. One of the most significant contributions of these agents has been in demonstrating the potential reversibility of complex disease, which should stimulate further inquiry into their pathogenesis with the hope of an ultimate understanding.—J. C. Beck, M.D., The Present Status of ACTH and Adrenal Steroid Therapy in Medicine, *Annals of Internal Medicine,* October, 1955.

tubing is fastened. The patient now sits down on the toilet seat so that the plastic angular tube is between his thighs pointing into the bowl. While seated, he connects the hot water bottle to the outside end of the small tube and puts the water bottle upon one thigh. The clamp is opened and the rubber bag pressed against the thigh with one hand, causing the water to enter the colostomy (fig. 2). The patient lifts the hand off the bag and closes the clamp when he does not want more water to enter his colon. Later, when water and colon contents are expelled, they are carried through the funnel and the large right angle tube directly into the toilet bowl. The patient may let more water run into his colon by opening the clamp and again exerting pressure upon the rubber reservoir. Closing the clamp, the patient then rests upon the toilet seat until he feels that no more watery feces will be expelled. This may require 20 minutes to an hour and a half. Finally, the patient disconnects the water bag and unlocks the funnel component. With the rubber stopper still wedged in the hole, the catheter is withdrawn from the colostomy as the funnel is removed from the plastic ring and put into a basin. Then the belt is loosened and the ring, too, is put into the basin. All parts are then washed in running water and may be dried and put away or stored under an antiseptic solution.

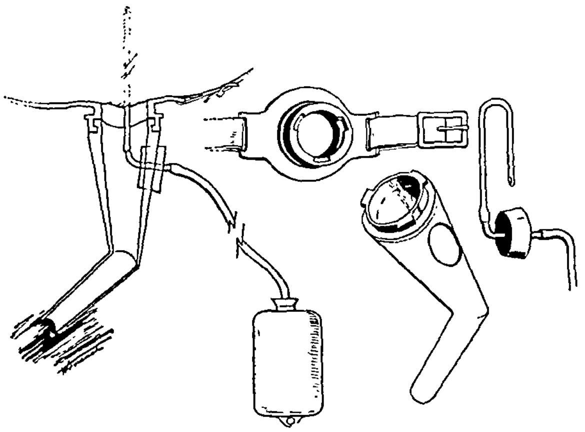


Fig. 1.—Parts of colostomy irrigator.

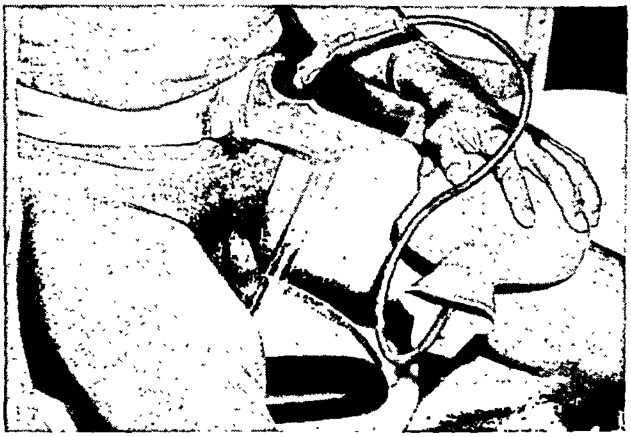


Fig. 2.—Patient using the improved colostomy irrigator.

This improved colostomy irrigator enables a patient to care for his toilet activities with a minimum of effort and inconvenience. It can also be used by the nursing staff while the patient still occupies a hospital bed, the principal difference being that the large drain tube must empty into a bedpan.

FULL-THICKNESS SKIN GRAFT IN THE CLOSURE OF A DEFECT OF THE THORACIC WALL

W. David Dunavant, M.D., Memphis, Tenn.

A free graft of full-thickness skin will live when sutured into a defect in the chest wall and the lung reexpanded. As far as we can ascertain from the literature this is the first time a full-thickness skin graft has been used to close a defect in the chest wall without placing the graft directly on the lung. Defects in the chest wall may result from radical resection of tumors or from trauma. Carcinoma of the breast or lung invading the chest wall or recurrent disease may require resection of a portion of the chest wall. If the defect extends into the pleural cavity the problem of an open pneumothorax exists and a flap of tissue must be made available to form an airtight closure.

Various methods have been devised in the past to repair defects in the chest wall. The opposite breast, muscle, and fascia were used by Maier [1] and Pickrell.[2] Free grafts of fascia lata were employed by Watson [3] and Mayer.[4] The pericardium was sutured into a defect in the chest wall and covered by split-thickness skin graft by Pickrell.[5] Tantalum plates have been used by Effler and Blades [6] and found to be unsatisfactory because they moved, became loose, and sloughed out or had to be removed. Morrow [7] has used tantalum plates successfully in dogs. Tantalum mesh has also been used but may undergo fragmentation due to constant movement of the thoracic cage. Although a full-thickness skin graft would offer little stability, it does offer the surgeon a means by which an airtight closure can be obtained in those defects where no other tissue is readily available. The following case report presents such a patient in whom the other breast or skin flaps could not be used for closure because of such a wide excision of skin and a portion of the chest wall.

REPORT OF A CASE

A 59-year-old Negro woman was seen in the outpatient department of the John Gaston Hospital on April 30, 1951, with the complaint of an ulcerating lesion on the right breast with

---

From the Department of Surgery, University of Tennessee School of Medicine and John Gaston Hospital.

1. Maier, H. C.: Surgical Management of Large Defects of Thoracic Wall, Surgery 22: 169-178, 1947.

2. Pickrell, K. L.; Kelly, J. W., and Marzoni, F. A.: Surgical Treatment of Recurrent Carcinoma of Breast and Chest Wall, Plast. & Reconstruct. Surg. 3: 156-172, 1948.

3. Watson, W. L., and James, A. G.: Fascia Lata Grafts for Chest Wall Defects, J. Thoracic Surg. 16: 399-406, 1947.

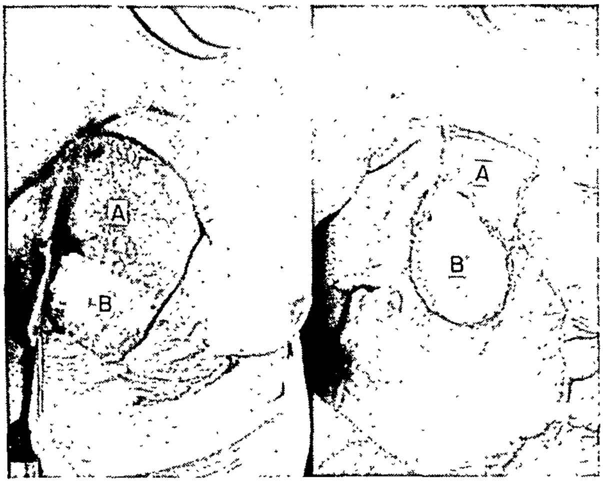
4. Mayer, L.: Chondro-Sarcoma of Rib: Five Year Cure After Resection, J. Mt. Sinai Hosp. 7: 467-470, 1941.

5. Pickrell, K. L.; Baker, H. M., and Collins, J. P.: Reconstructive Surgery of Chest Wall, Surg., Gynec. & Obst. 84: 465-476, 1947.

6: Effler, D. B., and Blades, B.: Function of Thoracic Surgery Centers in World War II, Am. J. Surg. 72: 319-330, 1946.

7. Morrow, A. G.: The Use of Tantalum Gauze in the Closure of Full-Thickness Defects in the Chest Wall: Experimental Study in Dogs, Surgery 28: 1016-1021, 1950.

constant pain. The patient was well until two years before, when she fell and struck her right breast. Following this a small lump was noticed in the lower portion of the breast that soon became asymptomatic. Four months ago the mass began to enlarge and became painful, especially when clothes would rub the lesion. She applied several types of skin paints and salves to the lesion, including iodine and carbolic acid. One month before admission the lesion became ulcerated. On April 28, 1951, she saw her physician for the first time, who referred her to the outpatient department of the John Gaston Hospital where a biopsy of the lesion was performed and revealed adenocarcinoma. On admission examination revealed an elderly, obese woman who did not appear acutely ill. On examination the head and neck were normal. She had hypertension (blood pressure 190/100 mm. Hg) with no evidence of decompensation or other cardiovascular disease. Heart and lungs were normal. There was a firm, hard mass measuring 8 cm. (about 3 in.) in diameter located at the inferior margin of the right breast at the junction of the chest wall. There was an ulceration at the lower border of the mass measuring 1.5 cm. (0.6 in.) in diameter. The mass and area of induration around the mass were firmly attached to the underlying chest wall. There were no supraclavicular nodes palpable, but one node 1 cm. (0.4 in.) in diameter could be felt in the axilla. The rest of the examination was negative.



Left, photograph of the wound on the 14th postoperative day showing *A*, granulating wound on the chest wall to be covered with a split-thickness graft and *B*, full-thickness skin graft covering the defect in the chest wall. *Right*, photograph of the wound on the 30th postoperative day showing *A*, split-thickness skin graft on the chest wall and *B*, full-thickness skin graft covering the defect in the chest wall and covering the lung.

Laboratory studies revealed a red blood cell count of 4,200,000 per cubic millimeter, hematocrit of 24%, and hemoglobin level of 9 gm. per 100 cc. The white blood cell count was 12,450 per cubic millimeter with a normal differential. The urinalysis revealed numerous white blood cells and gram-negative rods. The patient was placed on a high-protein, high-calorie diet supplemented with vitamins. She was given several transfusions and placed on penicillin and streptomycin therapy, with wet dressings applied to the ulcerated lesion. The ulcerated area became clean, regressed in size, and appeared to be healing.

She was operated upon on May 25, 1951, and a radical mastectomy with excision of a portion of the chest wall was performed. After dissection of the axilla, the pectoral muscles were dissected from the chest wall back to the site of the tumor. It was felt that the tumor was adhered to the intercostal muscles and ribs with possible invasion of the chest wall. A section of the chest wall was resected including the fifth and sixth ribs with the underlying pleura from the sternum laterally for a distance of 6 in., 2 in. beyond the gross extent of the tumor. The pleural cavity and lungs were then inspected and found to be free of gross metastasis or nodes. There was no gross evidence of disease along the internal mammary vessels. A full-thickness graft of skin was then obtained from the lateral flap at the upper end of the incision. All subcutaneous tissue was removed from the graft. With the lung collapsed the graft was sutured around the defect, making the pleural cavity airtight. A catheter was placed in the pleural cavity and was brought out through a stab wound lateral to the operative site. The entire wound was then closed as much as possible by swinging the other breast over and closing the skin flaps under tension. There was an area about 3 in. left open, part of the graft being visible. After the wound was closed the catheter was aspirated and the lung reexpanded. The catheter was then removed. A massive pressure dressing was then applied, and the patient was sent to the room in good condition.

Microscopic examination revealed adenocarcinoma with two positive nodes and extension into the deep pectoral fascia but no involvement of the ribs or intercostal muscles. The patient did well postoperatively with no respiratory difficulty, and the chest remained clear on x-ray. On the seventh postoperative day there was necrosis of the skin edges and sloughing and separation of the wound; however, at this time the graft was completely visualized and appeared to be viable. By the 14th postoperative day the open granulating wound was clean and the skin graft viable and intact (see figure, *left*). The chest wall was stable; however, the graft moved with respiration, the lung apparently having become adhered to the graft producing a source of blood supply and a viable graft. On the 24th postoperative day a split-thickness skin graft was placed on the granulating wound of the chest wall and all wounds were healed one month after surgery (see figure, *right*). This patient did well until May, 1953, when she was seen with metastasis of the lung and spine. She died in June, 1953.

COMMENT

A defect in the chest wall was closed with a full-thickness skin graft, and no instability of the chest resulted. The relatively thin covering of the lungs by the graft produced little protection; however, the patient wore a padded prosthesis with no difficulty as long as she lived. We do not know how large a defect could be covered with such a graft and the chest wall remain stable. However, it was no problem in this patient and from observation of this patient one would think that a defect twice this size could be covered with a skin graft without jeopardizing the stability of the chest.

899 Madison Ave.

Adrenal Steroid Therapy.—Although a vast number of clinical observations on the effects of . . . hormonal agents have been made, there is as yet little or no insight into the mechanisms by which these effects are produced and their site of action. It is postulated that there must be some fundamental action on cellular metabolism, which may lead to an alteration in the mechanism of response of the cells to the many unknown factors which lead to disease. Browne's philosophic concept of the "iceberg" theory of disease is a useful one: that, like the iceberg, many organism's responses to disease are similar and submerged below the surface; that the symptoms and signs which we recognize as disease entities are the visible peaks of the iceberg; and that the adrenal cortical hormones tend to alter or "melt away" the submerged portion, causing the visible peak, which is recognized as a disease, to disappear below the surface. As our observations increase we are repeatedly struck by the evidence of progression of the disease in spite of clinical remission. This is particularly true in the mesenchymal diseases, such as rheumatoid arthritis, rheumatic fever and lupus. This progression suggests that one "deviates" the disease but does not alter its basic course. One of the most significant contributions of these agents has been in demonstrating the potential reversibility of complex disease, which should stimulate further inquiry into their pathogenesis with the hope of an ultimate understanding.—J. C. Beck, M.D., The Present Status of ACTH and Adrenal Steroid Therapy in Medicine, *Annals of Internal Medicine*, October, 1955.

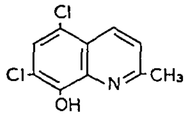
COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

Monographs and supplemental statements on drugs that appear in this column have been authorized by the Council for publication and inclusion in New and Nonofficial Remedies. They are based upon the evaluation of available scientific data and reports of investigations.

H. D. Kautz, M.D., *Secretary*

Chlorquinaldol. — $C_{10}H_7Cl_2NO$. — M.W. 228.09. — 5,7-dichloro-8-hydroxyquinaldine.—The structural formula of chlorquinaldol may be represented as follows:



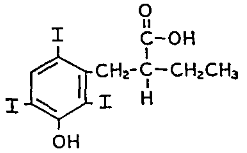
Actions and Uses.—Chlorquinaldol, an oxyquinoline derivative, exhibits the keratoplastic, antibacterial, and antifungal properties shared by other externally applied compounds of this type. Like similar derivatives, its mild antiseptic action may be useful in the topical treatment of minor cutaneous bacterial and mycotic infections. Chlorquinaldol may be more effective against bacterial infections than other isoquinolines, especially for resistant staphylococcic infections of the skin. It also appears to be at least as active against superficial fungal infections as other isoquinolines. The predominating keratoplastic effect of this type of compound may be more significant than its fungistatic action in the management of dermatomycoses.

Chlorquinaldol may produce skin sensitization that follows repeated topical use of other oxyquinoline derivatives. So far it appears to have a lower index of sensitization than other oxyquinoline derivatives such as iodochlorhydroxyquin. Chlorquinaldol may be better suited for local treatment of minor skin infections than certain antibiotics, which are known to produce frequent sensitivity reactions that interfere with their systemic use in serious generalized infections. If skin sensitization appears after repeated application of chlorquinaldol, the agent should be discontinued until such reaction subsides and then, if further treatment is indicated, replaced by some other type of treatment.

Dosage.—Chlorquinaldol is applied topically as a 3 to 5% concentration in a suitable dermatological vehicle. After appropriate cleansing, a cream or ointment may be applied twice daily to affected areas.

Geigy Pharmaceuticals, Division of Geigy Chemical Corporation, cooperated by furnishing scientific data to aid in the evaluation of chlorquinaldol.

Iophenoxic Acid.—$C_{11}H_{11}I_3O_3$.—M.W. 571.96.—α-Ethyl-3-hydroxy-2,4,6-triiodohydrocinnamic acid.—α-Ethyl-β-(3-hydroxy-2,4,6-triiodophenyl)propionic acid.—The structural formula of iophenoxic acid may be represented as follows:



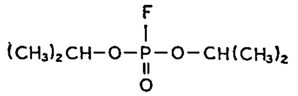
Actions and Uses.—Iophenoxic acid is a water-insoluble organic iodine compound for oral administration as a radiopaque agent in cholecystography. It produces a reasonably consistent and dense gallbladder shadow for roentgenographic visualization of nonopaque stones and for observing the functional capacity of the gallbladder to concentrate and then expel bile following a high fat meal. It also permits visualization of the extrahepatic ducts after cholecystography. After oral administration, it is rapidly absorbed, eliminated in the bile, and subsequently excreted, chiefly in the urine. Thus it seldom produces opacities in the gastrointestinal tract. An optimal concentration in the gallbladder usually appears within 8 to 12 hours after ingestion of a single dose; the density of the shadow produced with the recommended dose ordinarily does not obscure stones that may be present.

Iophenoxic acid has a low systemic toxicity and a low level of unpleasant side-reactions. Nausea, vomiting, and diarrhea are minimal, rarely severe. Complaints of a burning sensation while swallowing have not been reported, and subsequent dysuria occurs infrequently. As with other systemically administered iodinated compounds, it should be used with extreme caution, if at all, in patients with advanced renal impairment. The calculated risk involved with its use in other conditions in which iodine may be contraindicated, especially when there is known iodine sensitivity, should be weighed against the need for cholecystographic diagnosis.

Dosage.—Iophenoxic acid is administered orally. The usual dose is calculated on the basis of approximately 50 mg. per kilogram (2.2 lb.) of body weight. A dose of 3 gm. is usually adequate for a patient weighing 68 kg. (150 lb.); a dose of 6 gm. should not be exceeded. For cholecystography, the patient is instructed whenever feasible to eat a high fat lunch the day the agent is to be administered to encourage evacuation of the gallbladder so that it may refill with opacified bile; the evening meal should be fat free. The calculated dose is taken with a glass of water at such time during the evening as will permit a 10 hour interval to elapse prior to the time scheduled for roentgenography on the following morning. A fatty meal ingested after the cholecystographic examination usually permits roentgenographic visualization of the extrahepatic ducts 20 to 30 minutes after the meal. If the gallbladder is not visualized following the initial dose and this cannot be attributed to extracholecystic factors, the examination should be repeated the following day with the same dose. Nonvisualization after a second dose usually indicates a pathological condition of the gallbladder.

Schering Corporation cooperated by furnishing scientific data to aid in the evaluation of iophenoxic acid.

Isoflurophate, U. S. P.—$C_6H_{14}FO_3P$.—M.W. 184.15. — Diisopropyl fluorophosphate. — The structural formula of isoflurophate may be represented as follows:



$$(CH_3)_2CH{-}O{-}\overset{\overset{F}{|}}{\underset{\underset{O}{\|}}{P}}{-}O{-}CH(CH_3)_2$$

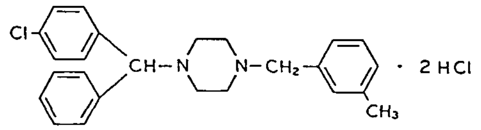
Actions and Uses.—Isoflurophate, a parasympathomimetic agent, acts chiefly by irreversible inhibition of the enzyme, cholinesterase. The anticholinesterase activity of isoflurophate is more prolonged than that of physostigmine and similar drugs; thus it is more convenient for maintaining miosis in the treatment of glaucoma, with fewer instillations. Systemic administration of the drug is contraindicated because this produces a profound reduction of plasma cholinesterase that is associated with prolonged and sometimes serious effects of generalized parasympathetic stimulation, including salivation, lacrimation, intestinal cramps, urge to urinate and defecate, shock, and collapse. In addition to its widespread cholinergic effect, large systemic doses of the drug also produce paralysis of autonomic ganglions that resembles the systemic action of nicotine. When the drug is instilled locally in the eye, plasma cholinesterase is reduced only slightly and seldom is accompanied by systemic effects. Isoflurophate produces a powerful and relatively prolonged miotic action and spasm of the muscles of accommodation caused by the local antagonism of cholinesterase. It is used by corneal instillation to reduce intraocular tension in the treatment of aphakic glaucoma and chronic noncongestive (wide angle) glaucoma, for preoperative control of glaucoma, and as an antidote against the harmful action of atropine on preglaucomatous and glaucomatous eyes. Many ophthalmologists consider the drug to be contraindicated in acute congestive (narrow angle) glaucoma because of the danger of increasing intraocular pressure.

Isoflurophate has a tendency to produce ciliary spasm and, rarely, a rise rather than a reduction in intraocular tension. This latter response probably can be forestalled if tonometric examinations are made hourly after the initial use of the drug, since instillations of 1 or 2% epinephrine solution at 5 minute intervals, following detection of increased pressure, may be successful in preventing any further rise. The ciliary spasm that is produced at times by isoflurophate may cause brow pain and headache that may be minimized and at times eliminated by the use of smaller amounts of the drug. Local sensitivity to the drug or the solvent in which it is applied may occur, but such reactions are infrequent. Resistance to its tension-lowering effect may develop in some patients after several months. Retinal detachment has been reported in high myopia produced by isoflurophate, but the incidence appears to be no greater than that following the use of other commonly employed miotics. In case of accidental systemic administration, the concomitant injection of atropine sulfate to combat cholinergic action and magnesium sulfate to combat nicotinic action may be indicated; however, unless the systemic dose is sufficiently high to produce ganglionic paralysis, 0.4 to 0.6 mg. of atropine sulfate alone, parenterally, usually is adequate to overcome the parasympathomimetic effects of the drug in such emergencies.

Dosage.—Isoflurophate is administered locally in the eye by corneal instillation of a 0.1% solution in vegetable oil. The usual dosage is one to three drops of such solution in the affected eye every 8 to 72 hours. If possible, instillation should be made at night before retiring so that blurring of vision will be less disturbing.

Sharp & Dohme, Division of Merck & Co., Inc., cooperated by furnishing scientific data to aid in the evaluation of isoflurophate.

Meclizine Hydrochloride. — $C_{25}H_{27}ClN_2.2HCl$. — M.W. 463.87. — 1-(*p*-Chlorobenzhydryl)-4-(*m*-methylbenzyl)piperazine dihydrochloride.—The structural formula of meclizine hydrochloride may be represented as follows:



Actions and Uses.—Meclizine hydrochloride, like other antihistaminic agents, depresses the central nervous system. It exhibits a pronounced action against motion sickness as measured in human beings by a depressive effect upon the excitability of labyrinth and vestibular-cerebellar nerves. It is not yet clear whether such action can be explained by the interference with histamine (or a histamine-like substance), by the central depressant effect, or both. Pharmacological studies indicate that it has an antihistaminic potency at least as great as that of other similar agents and a somewhat longer duration of action. The action of a single oral dose is prolonged over a period of 9 to 24 hours.

Meclizine hydrochloride is effective in the prevention or treatment of motion sickness (including air sickness and seasickness) and in the treatment of nausea and vomiting associated with vertigo, labyrinthitis, Ménière's syndrome, and radiation sickness.

Meclizine hydrochloride, like other antihistamines, may produce drowsiness and other side-reactions, such as blurred vision, dryness of the mouth, and fatigue. Therefore, it should be used with caution by individuals whose activities require constant alertness in the operation of machinery, especially vehicles. Studies so far do not reveal that the drug is any more toxic than other similar agents, but until more is known of its long-term effects, physicians should be on guard for the appearance of untoward reactions. When prolonged use may be indicated, periodic blood cell counts should be made to detect any adverse effects on the hematopoietic system.

Dosage.—Meclizine hydrochloride is administered orally. An average oral dose for adults of 25 to 50 mg. once daily is recommended for the prevention of motion sickness. Ideally, the initial dose should be taken about one hour prior to embarkation to insure absorption (and retention) of the drug prior to the development of symptoms. Children require about one-half the adult dose. Similar oral dosage may be employed as tolerated in the treatment of radiation or motion sickness and for the control of nausea and vomiting in diseases involving the labyrinth or eighth cranial nerve.

Pfizer Laboratories, Division of Chas. Pfizer & Company, Inc., cooperated by furnishing scientific data to aid in the evaluation of meclizine hydrochloride.

Alseroxylon.—A fat-soluble alkaloidal fraction extracted from the root of Rauwolfia serpentina (Benth), containing reserpine and other nonadrenolytic amorphous alkaloids.

Actions and Uses.—Alseroxylon has the action of the sedative-antihypertensive-bradycrotic alkaloids of Rauwolfia serpentina, of which reserpine is among the most potent. It has the same uses and limitations as the whole root, rauwolfia, and its chief component alkaloid, reserpine. (See monograph on reserpine.)

Dosage.—Alseroxylon is administered orally. For adults the average oral dosage is 2 to 4 mg. daily. Higher oral dosage may be required for sedation of gross psychotic disturbances than for anxiety-tension syndromes associated with mild, labile hypertension or as an adjunct to more potent hypotensive agents in essential hypertension. (Orally, 1 mg. is approximately equivalent to 0.2 mg. of reserpine.)

Riker Laboratories, Inc., cooperated by furnishing scientific data to aid in the evaluation of alseroxylon.

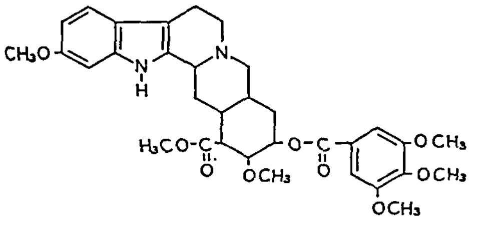
Rauwolfia.—The powdered whole root of Rauwolfia serpentina (Benth).

Actions and Uses.—Rauwolfia produces the sum of the actions of the total alkaloids contained in the whole root. The component alkaloids exhibit the sedative-antihypertensive-bradycrotic action characteristic of reserpine, the latter of which accounts for approximately 50% of their total activity. The whole root contains only insignificant amounts of yohimbine and other adrenolytic alkaloids. Thus, rauwolfia is useful for the same purposes and with the same precautions as for reserpine. See the monograph on reserpine.

Dosage.—Rauwolfia is administered orally. For adults the average oral dosage of the powdered whole root is 200 to 400 mg. daily, administered in two divided doses. Larger doses may be required for sedation of gross psychotic disturbances than for anxiety-tension states associated with mild, labile hypertension or as an adjunct to potent hypotensive agents in essential hypertension. Orally 200 to 300 mg. of powdered whole root is equivalent to 0.5 mg. of reserpine.

E. R. Squibb & Sons, Division of Olin Mathieson Chemical Corporation, cooperated by furnishing scientific data to aid in the evaluation of rauwolfia.

Reserpine.—$C_{30}H_{40}N_2O_9$.—M.W. 608.70.—An ester alkaloid isolated from the root of certain species of Rauwolfia. The structural formula of reserpine may be represented as follows:



Actions and Uses.—Reserpine is considered one of the most potent of the Rauwolfia alkaloids, which exhibit a sedative action and antihypertensive effect accompanied by bradycardia. Its antihypertensive effect is variable and ineffective in some patients. Studies in experimental animals indicate that the drug acts on the central nervous system, producing a tranquilizing nonhypnotic sedation, ptosis of the eyelids, sinus bradycardia, increased secretory and motor activity of the gastrointestinal tract, and a variable lowering of mean arterial blood pressure. The latter effect is attributed to a decrease in peripheral vasoconstriction apparently induced by central action on the vasomotor mechanism and is not associated with a significant alteration of cardiac output or renal plasma flow. Some effects of the drug suggest an action on the autonomic nervous system, although it does not exhibit either peripheral adrenolytic or peripheral parasympathomimetic activity and it does not block autonomic ganglions. Its observed effects are presumed to result from a central partial suppression of sympathetic predominance near the level of the hypothalamus where autonomic nervous functions are integrated. In contrast to barbiturates, reserpine produces less somnolence and does not alter significantly the electroencephalogram, depress the cortex, or prevent stimulant-induced convulsions.

The dose-response curve of reserpine is rather flat, although large doses may be associated with increased side-effects. After a single intravenous dose, the onset of sedative action of the drug usually occurs within about 30 minutes and the onset of antihypertensive effect usually begins within an hour. After intramuscular injection, the onset of these effects may appear slightly later in the same subjects. The maximum sedative and antihypertensive effect usually is reached within about 4 hours; the sedative action may persist longer (up to 12 hours) than the antihypertensive action (up to 10 hours) after intramuscular injection. The variations in time of onset and duration of action appear to be more a function of dosage and individual responsiveness than the route of parenteral administration. With daily oral administration the effects of the drug usually are not fully manifest for several days to 2 weeks and may persist for as long as 4 weeks after oral medication is discontinued. Tolerance to the drug does not develop with continued administration.

Reserpine is useful chiefly for its tranquilizing sedative action in the symptomatic management of patients with anxiety or tension psychoneuroses as such or as an accompaniment to somatic disorders and of patients with chronic psychoses involving anxiety, psychomotor hyperactivity, or compulsive aggressive behavior. It is useful also for the management of mild, labile hypertension associated with anxiety and emotional factors and, in conjunction with potent hypotensive agents, for the management of essential hypertension and hypertension associated with toxemia of pregnancy. The use of reserpine alone is considered to be of little value for severe or fixed hypertension, but it is useful to enhance or prolong the action of potent hypotensive agents to reduce dosage and side-effects. It probably should not be used with barbiturates in eclampsia or other conditions in which profound sedation would be undesirable. The value of reserpine for routine use as a prophylactic against progressive vascular changes in patients with early hypertension has not been established. The exclusive use of reserpine in severe hypertension also may be considered dangerous because it may create a false sense of security at the expense of more effective measures.

Higher doses of the drug (administered orally and parenterally) usually are required in the management of grossly disturbed psychoses than in anxiety-tension states where the oral route usually is adequate. In both types of patients the drug must be administered for a period of 1 (usually) or 2 weeks before the optimal level of dosage can be determined. The tranquilizing effect of the drug may make the psychotic patient more accessible for concurrent psychotherapy; however, in the treatment of very disturbed psychotic patients, the effect of the drug should be carefully observed to avoid the development of an oblique attitude of indifference or detachment toward the underlying emotional conflicts. It should be realized that unless dosage is carefully adjusted the drug may induce a paradoxical form of anxiety and an adverse reactive depression. In chronic psychoses the drug does not appear to alter the basic psychopathological state.

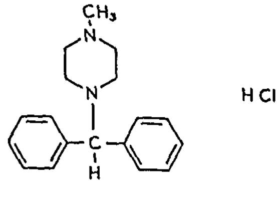
Reserpine has a rather low toxicity but may be associated with undesirable or toxic side-effects especially at the high dosage levels. Side-effects are more likely to occur in hypertension when the dosage of the drug, which does not have a pronounced antihypertensive effect, is increased in an effort to obtain a greater response. The side-effects commonly include nasal stuffiness, weight gain, and diarrhea and, less frequently, dryness of the mouth, insomnia, nervousness, paradoxical anxiety, increased gastrointestinal activity, chronic fatigue or sense of weakness in the extremities, muscular aching, nightmares, and agitated or paranoid depression. Skin eruptions occur rarely and peptic ulceration is a rare complication. Epistaxis also has been encountered. A paralysis agitans-like syndrome has been observed; this is reversible and apparently results from excessive dosage. Postural hypotension may occur occasionally after parenteral administration, but this rarely occurs after oral administration except with large dosage.

Parenteral therapy with reserpine alone is indicated in mild hypertension only when oral administration is not feasible. When relatively large doses are required, as in chronic psychoses, intramuscular injection is indicated in conjunction with oral medication; oral administration is best suited for use in conjunction with potent hypotensive drugs in chronic, severe hypertension. Because of the slow and variable antihypertensive effect, parenteral injection of reserpine alone is not suitable for the management of hypertensive crises.

Dosage.—Reserpine is administered orally and by intramuscular or intravenous injection. The usual oral dosage for adults in the treatment of mild, labile hypertension is 0.25 to 1 mg. daily in two or three divided doses. In some cases as little as 0.05 mg. or as much as 1.5 mg. daily may be required. As an adjunct to more potent hypotensive agents in severe hypertension, 0.25 to 0.5 mg. daily is usually adequate. In anxiety or tension psychoneuroses, the daily dosage is 0.5 to 2 mg. In disturbed psychotics an oral dosage of 3 to 5 mg. daily is usually employed in conjunction with intramuscular injection of 5 to 10 mg. daily, depending on the response to the drug.

Ciba Pharmaceutical Products, Inc., Eli Lilly & Company, Pfizer Laboratories, Division of Chas. Pfizer & Co., Inc., and Riker Laboratories, Inc., cooperated by furnishing scientific data to aid in the evaluation of reserpine.

Cyclizine Hydrochloride.—$C_{18}H_{22}N_2.HCl$.—M.W. 302.86.—1-diphenylmethyl-4-methylpiperazine hydrochloride.—1-benzhydryl-4-methylpiperazine hydrochloride.—The structural formula of cyclizine hydrochloride may be represented as follows:



Actions and Uses.—Cyclizine hydrochloride is an antihistamine compound that has been found useful in the prevention and relief of motion sickness. Its usefulness as a histamine antagonist in allergic states has not been evaluated. The drug appears to be effective in the control of vertigo, nausea, and vomiting in a high percentage of cases of seasickness and airsickness. Like certain other antihistamines, cyclizine also appears to reduce sensitivity of the labyrinth in the symptomatic relief of vertigo and concomitant symptoms caused by vestibular disorders. The use of the drug for this purpose should not be continued longer than a week without determining the presence or absence of serious vestibular disease or toxic sources of vestibular disturbance for which corrective treatment may be indicated. Its effectiveness for the prevention or treatment of nausea and vomiting from other causes, such as pregnancy and after surgery and anesthesia, has not been established.

In doses ordinarily effective against motion sickness, cyclizine hydrochloride appears to be relatively free of the side-effects usually encountered with antihistamine drugs. High dosage may cause some drowsiness and mouth dryness. The possibility of sedation also should be kept in mind when the drug is used in susceptible persons operating vehicles or machines that require constant alertness.

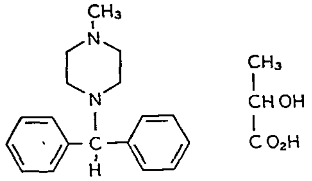
Dosage.—Cyclizine hydrochloride is administered orally. To prevent and relieve motion sickness, the usual dosage for adults is 50 mg. one-half hour before departure and 50 mg. three times daily before meals. Continued administration of the drug may be unnecessary after the first 2 or 3 days of extended travel, depending on the type of travel, duration of the trip, and susceptibility of a person to motion sickness.

To relieve vertigo and concomitant symptoms of vestibular disorders, the minimum oral dosage for adults is 50 mg. three times daily; twice this amount may be required to completely relieve symptoms.

One-half the adult dosage is suggested for children 6 to 10 years, and one-fourth the adult dosage for those under 6 years of age.

Burroughs Wellcome & Company, Inc., cooperated by furnishing scientific data to aid in the evaluation of cyclizine hydrochloride.

Cyclizine Lactate.—$C_{18}H_{22}N_2.C_3H_5O_3$.—M.W. 355.46.—1-diphenylmethyl-4-methylpiperazine lactate. —1-benzhydryl-4-methylpiperazine lactate.—The structural formula of cyclizine lactate may be represented as follows:

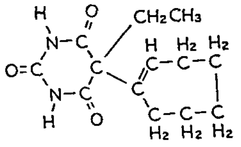


Actions and Uses.—Cyclizine lactate has the same systemic actions as the hydrochloride salt of the drug. (See monograph on cyclizine hydrochloride.) The lactate is suitable for intramuscular injection when the oral route is not feasible for the control of motion sickness or vertigo caused by other vestibular disturbances. Its usefulness for the prevention or treatment of nausea and vomiting from other causes has not been established.

Dosage.—Cyclizine lactate is administered by intramuscular injection in a solution containing 50 mg. per cubic centimeter. The dosage is the same as for the orally administered hydrochloride. (See monograph on cyclizine hydrochloride.)

Burroughs Wellcome & Company, Inc., cooperated by furnishing scientific data to aid in the evaluation of cyclizine lactate.

Heptabarbital.—$C_{13}H_{18}O_3$.—M.W. 222.29.—5-(1-cyclohepten-1-yl)-5-ethylbarbituric acid.—The structural formula of heptabarbital may be represented as follows:



Action and Uses.—Heptabarbital is qualitatively similar in action to other short-acting, chemically related barbiturates. It produces sedation, hypnosis, or anesthesia, depending on the dose administered, but has not been demonstrated to have specific analgesic properties. It exerts a mild spasmolytic effect on smooth muscle and produces mild hypotension as a result of central sedation and peripheral vasodilation. Low grade tolerance develops readily with repeated administration, but this does not appear to be greater than that observed with other barbiturates. Euphoria may accompany the use of fairly large doses, and, like other short-acting barbiturates, the drug is potentially capable of inducing habituation and physical dependence.

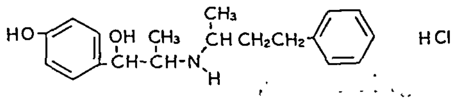
Heptabarbital appears to be readily absorbed from the gastrointestinal tract and undergoes rapid metabolic destruction in the body. The latter characteristic probably accounts for its short duration of action and relative lack of cumulative effects. Biochemical studies indicate that the compound first is oxidized to a ketone, which then undergoes such rapid further degradation that less than 4% of the ketone can be recovered in the urine; none of the drug is excreted unchanged. Whereas the experimental and some clinical studies demonstrate that heptabarbital accumulation in the body is less than with pentobarbital, this represents only a theoretical clinical advantage and does not take into consideration individual variations in the detoxication capacity of the liver or other organs.

Heptabarbital is worthy of clinical trial as a comparatively short-acting barbiturate in all situations for which mild sedation or hypnotic action is indicated. Its use as an anesthetic agent has not been adequately explored. At the hypnotic dosage level its acute toxicity is about one-third that of pentobarbital, 0.6 gm. of heptabarbital being roughly equivalent to 0.2 gm. of pentobarbital. A single hypnotic oral dose of 0.2 to 0.4 gm. of heptabarbital, given 30 to 45 minutes before retiring, rarely is associated with "hangover." A minimum of side-effects has been observed after daily doses of 0.6 to 2.4 gm.; gastrointestinal disturbances, skin eruption, excitement, or other side-effects are rarely encountered. Chronic toxicity studies in dogs receiving 100 mg. per kilogram of body weight per day for 90 days have revealed no unusual biochemical changes and no evidence of injury to the parenchymatous tissues or the blood-forming organs. Until longer clinical experience with the drug indicates otherwise, however, it should be employed with the general precautions applicable to all barbiturates.

Dosage.—Heptabarbital is administered orally. The optimal effective dosage has not been conclusively established. For sedation, 50 to 100 mg. two or three times daily is suggested. The suggested hypnotic dose is 0.2 to 0.4 gm. before retiring. Some patients may require a hypnotic dose of 0.6 gm. Until the effective dosage is more firmly established, it may be preferable to start with the suggested lower amounts, adding moderate daily increments until a satisfactory level of sedation or hypnosis is obtained.

Geigy Pharmaceuticals, Division of Geigy Chemical Corporation, cooperated by furnishing scientific data to aid in the evaluation of heptabarbital.

Nylidrin Hydrochloride.—$C_{19}H_{25}NO_2.HCl$.—M.W. 345.88.—1-(*p*-hydroxyphenyl)-2-(1-methyl-3-phenylpropylamino)propanol hydrochloride.—The structural formula of nylidrin hydrochloride may be represented as follows:



Actions and Uses.—Nylidrin hydrochloride is an epinephrine-ephedrine type of compound that acts as a peripheral vasodilator. The site of action is the same as that of other sympathomimetic drugs, but its effect is vasodilator only, producing relaxation of the muscle fibers in the media of the vessel wall. Its action appears to be almost selective upon the small arteries and arterioles of skeletal muscle. It increases muscle blood flow but has little or no effect upon the superficial skin vessels. This action upon the vessels of skeletal muscle has been demonstrated in both human and animal experiments. Studies with plethysmographic measurements have confirmed the ability of nylidrin hydrochloride to increase muscle blood flow and to exercise tolerance in peripheral vascular disease.

The activity of nylidrin hydrochloride results in the mobilization of depot blood and brings about an increased cardiac output. In the hypertensive individual the mean arterial pressure may drop, whereas in the hypotensive patient the mean arterial pressure may actually increase, in comparison to the sitting normotensive individual in whom the mean arterial pressure is either unaltered or only slightly diminished. The drug is rapidly absorbed from the gastrointestinal tract and is only slightly affected by digestive enzymes. It is slowly metabolized and has a protracted action.

Nylidrin hydrochloride is indicated in vascular disorders of the extremities that may be benefited as the result of increased blood flow. Accordingly, it is worthy of trial in intermittent claudication and Raynaud's disease and as an adjunct to other measures in severe forms of peripheral vascular disease such as diabetic vascular disease, thrombophlebitis, thromboangiitis obliterans, ischemic ulcers, and endarteritis obliterans. Minor side-effects such as nervousness or palpitation may occur, but usually these are transient and disappear with continued therapy or reduction of dosage. The drug should be used with caution in hyperthyroidism, paroxysmal tachycardia, and severe angina pectoris. It is contraindicated in acute coronary thrombosis.

Dosage.—The suggested initial dosage for adults is 6 mg. orally three times daily. This may be increased to four to six times daily, depending upon clinical response and individual tolerance. If side-effects develop and persist, the dose should be reduced to 3 mg. three times daily or therapy temporarily discontinued and then resumed with lower doses.

Arlington-Funk Laboratories, Division of U. S. Vitamin Corporation, cooperated by furnishing scientific data to aid in the evaluation of nylidrin hydrochloride.

Sodium Radio-Chromate (Cr^{51}).—Anionic hexavalent radioactive chromium (Cr^{51}) in the form of sodium chromate ($Na_2Cr^{51}O_4$). The radio-chromium (Cr^{51}) has a half-life of 26.5 days. It disintegrates primarily by K capture, with transmutation to vanadium and emission of x-rays.

Actions and Uses.—The presence of a gamma ray of 0.32 mev energy in the radiation emitted by radiochromium makes sodium radio-chromate (Cr^{51}) useful as a biological tracer. When mixed with whole blood, the hexavalent chromate anion (CrO_4——) readily diffuses through the wall of the red blood cells and inside the cells is reduced to the trivalent chromic cation ($Cr{+}{+}{+}$), which then firmly associates with the globin portion of their contents. Because the chromic form of the isotope apparently is not capable of passing the cell wall barrier and thus cannot be reutilized by intact cells, erythrocytes can be tagged by exposure to the diffusible chromate anion for determinations of circulating red cell volume and studies of red cell survival time. The isotope also can be employed for the determination of whole blood volume (red cell mass and plasma volume), used either alone or in conjunction with radioactive chromic chloride ($Cr^{51}\,Cl_3$). The radioactive chromic cation released by destruction of tagged erythrocytes readily combines with plasma proteins; however, the radioactivity of the plasma is lost more rapidly than that of the cells so that neither form of the isotope interferes with the other when used alone or simultaneously for such studies.

To tag erythrocytes, a sample of the patient's blood or of donor blood is mixed with a solution of sodium radio-chromate (Cr^{51}) and allowed to stand until the isotope diffuses into the cells. The unbound chromium (in the plasma) is then either reduced by addition of ascorbic acid or removed by separation and washing of the cells. The treated blood or a suspension of the separated cells is then injected into the circulation, and sufficient time is allowed for complete in vivo mixing before samples are taken for scintillation counting. Red cell or whole blood volume is estimated by the radioisotope dilution method. Red cell survival time may be studied by a similar technique with samples taken at appropriate intervals and corrections made for decay in gamma radiation. Consistently lower values for whole blood volume are obtained by the radioactive chromium method than by the dye method. Normal mean values for whole blood volume obtained by the isotope method are 65.6 ± 5.95 cc. per kilogram of body weight, or 2.49 ± 0.28 liters per square meter of body surface.

Sodium radio-chromate (Cr^{51}) has not been shown to produce any significantly deleterious effects on normal erythrocytes, either from the standpoint of radioactivity or the amount of metallic chromium present. Because the bond that is formed with the cells is stable, the isotope has the advantage of permitting leisurely conducted radioisotopic studies of erythrocytes, including rechecks up to 24 hours, without correcting for loss of radioactivity. In studying red cell survival it eliminates the necessity for using donor cells and thus is free from the danger of incompatibilities of blood type or of transmission of the virus of serum hepatitis.

Dosage.—Sodium radio-chromate (Cr^{51}) is used in the form of a solution suitable for intravenous injection that first is mixed with a sample of 40 or 50 cc. of whole blood withdrawn from the patient or from a compatible donor. The dose is based upon the amount necessary to tag 80 to 90% of the erythrocytes in the sample of whole blood and ranges from 75 to 125μc (microcuries) with conventional techniques. Doses as low as 10 to 15μc have been used with special techniques for determinations of whole blood volume. After it is mixed with the appropriate dose, the sample should be allowed to stand for 15 to 60 minutes to achieve adequate tagging. After appropriate reduction or removal of the unbound portion of the isotope, the treated sample or separated suspension of erythrocytes is then injected and allowed to mix with the circulating blood before samples are withdrawn for counting.

As the tagged cells are very stable, repeat doses are seldom indicated. In conditions such as severe hemolytic anemia where red blood cell survival studies may be indicated before, during, and after treatment, and where repeat doses are necessary because of rapid destruction of red blood cells, the number of repeat doses should be kept at a minimum and the total dosage should not exceed 390 μc in the body at any one time.

Abbott Laboratories cooperated by furnishing scientific data to aid in the evaluation of sodium radio-chromate (Cr^{51}).

COUNCIL ON FOODS AND NUTRITION

Report to the Council

The following article was prepared at the request of the Council on Foods and Nutrition.

EUGENE H. STEVENSON, M.S.
Acting Secretary.

VITAMIN B_6 IN MEDICAL PRACTICE

Richard W. Vilter, M.D., Cincinnati

Whenever a new vitamin or an altered form of an existing one is added to the medical armamentarium, it is received with such enthusiasm that for a time it appears to be a panacea for human ills. Usually, after a number of years, the test of time and further research demonstrate its area of real value. Such was the story with thiamine, ascorbic acid, folic acid, and cyanocobalamin (vitamin B_{12}). With vitamin B_6 there have been two surges of enthusiasm, one just after it was synthesized by Harris and Folkers in 1939 and another going on now and based on much more complete and convincing data. Thus it seems desirable to pause and evaluate the present position of vitamin B_6 in therapy.

Vitamin B_6 is, in reality, a group of closely related chemical compounds that may be called the vitamin B_6 complex. Pyridoxine [2-methyl-3-hydroxy-4,5-di-(hydroxymethyl) pyridine] is found primarily in the vegetable kingdom. If the 4-hydroxymethyl group is oxidized to an aldehyde, pyridoxal is formed. If the hydroxy group is replaced by an amino group, the result is pyridoxamine. Both pyridoxal and pyridoxamine occur primarily in the animal kingdom and exist as phosphates, this radical being attached to the 5-hydroxymethyl group. Thus pyridoxal phosphate seems to exist in equilibrium with pyridoxamine phosphate. The active coenzyme form of the vitamin is usually considered to be 5-pyridoxal phosphate.

The members of the vitamin B_6 group may be oxidized still further to pyridoxic acid, the chief excretory product of B_6 found in the urine. This form of the vitamin is metabolically inactive. Metabolic antagonists for vitamin B_6 have been synthesized, the one most commonly used in research being 4-desoxypyridoxine. As the name implies, the oxygen atom has been removed from the 4-methylhydroxy group, leaving a methyl group in its place. When this substance is phosphorylated, cells apparently mistake it for pyridoxal phosphate, but, being inactive, it inactivates the enzyme systems to which it attaches.

Vitamin B_6 is so widely distributed in nature that only under unusual circumstances is it possible for a dietary deficiency state to occur. Much more accurate data are needed on the vitamin B_6 content of many foods, but enough information is available to support this statement. When human beings take vitamin B_6 by mouth, it appears to be absorbed very readily from the gastrointestinal tract, pyridoxal more rapidly than pyridoxine or pyridoxamine, as indicated by a greater and more rapid excretion of pyridoxic acid in the urine. A considerable amount of the vitamin is present in the feces, but this is derived, apparently, from intestinal micro-organisms. Whether any of this fecal vitamin B_6 is absorbed by the human being cannot be answered as yet. Meager evidence so far is against much absorption from this source; however, laboratory animals such as the rat do obtain some vitamin B_6 in this way. A small amount of vitamin B_6 appears in the urine as pyridoxal and pyridoxamine. A much larger amount appears as pyridoxic acid. Since the test for pyridoxic acid measures other fluorescent substances as well, it is unreliable at low levels and, in persons on a normal diet, indicates a greater day-to-day excretion of pyridoxic acid than actually occurs.

The daily requirement of vitamin B_6 for human beings is estimated to be 1 to 2 mg.; the average American diet provides this much with ease. The average amount of vitamin B_6 lost in the stool is 0.5 to 0.8 mg. The average amount lost in the urine as the active vitamin is 0.2 to 0.3 mg. and as pyridoxic acid 3 to 4 mg. In order to bring these data into balance, one must remember that the vitamin lost in the stool has been derived primarily from micro-organisms and does not represent food vitamin B_6 and that the pyridoxic acid values are erroneously high. It is probable that a balance occurs at an intake-output of about 2 mg. Very little vitamin B_6 is found in the blood. Serum levels average about 5 mcg. per 100 cc. Pyridoxal phosphate levels are even lower. Tissue levels have not been determined often enough in human beings for a statement of values, though the level for normal skin appears to be about 1 mcg. per gram (dry weight).

Within the cells, vitamin B_6 performs many extremely important functions. When pyridoxal phosphate is combined with specific protein enzymes, it can act as a transaminase, decarboxylase, and desulfurase; that is, it can catalyze the transfer of amino groups from an amino acid to a keto acid to form a new amino acid, it can remove a carboxyl group from amino acids, and it can remove sulfhydryl groups from sulfur-containing compounds. All of these are reversible reactions. In these ways, vitamin B_6 provides raw materials for the Krebs cycle, one of the most important energy sources in the body; builds up new amino acids; and transfers sulfhydryl groups from one compound to another. It is important also for tryptophan metabolism, particularly for the conversion of tryptophan to nicotinic acid derivatives, and for the interconversion of the essential fatty acids.[1] The metabolic antagonist of B_6, desoxypyridoxine, has been shown to block most of these reactions; desulfuration is unaffected.

DEFICIENCY

Chemical tests for vitamin B_6 deficiency in human beings are based on alterations of the physiology and biochemistry just described. A urine vitamin B_6 level under 100 mcg. per 24 hours as measured by growth of

---

From the Department of Internal Medicine, University of Cincinnati, College of Medicine.

[1] Snell, E. E.: Summary of Known Metabolic Functions of Nicotinic Acid, Riboflavin and Vitamin B_6, Physiol. Rev. 33: 509 (Oct.) 1953.

the yeast Saccharomyces carlsbergensis is presumptive evidence of deficiency. The pyridoxic acid excretion cannot be determined with sufficient accuracy at low levels to make this a satisfactory test for deficiency states; however, it will measure the excretion of pyridoxine or pyridoxal administered as a load test and will detect reduced excretion (and therefore presumably increased storage) in persons whose tissues have become unsaturated during a period of deficiency. A test load of 25 mg. of crystalline pyridoxal has been recommended. Pyridoxic acid is measured in a four or eight hour collection of urine. A normal excretion of about 50% of the administered vitamin as pyridoxic acid is expected. Even in normal persons vitamin B_6 levels in blood and tissues are at the lower limits of accuracy of the test, so that these methods are unsatisfactory for the study of deficiency states.

A much simpler and more satisfactory method depends upon the appearance of an abnormal metabolite of tryptophan, xanthurenic acid, in the urine in persons who have become deficient in vitamin B_6. In order to bring out this defect, a *dl* tryptophan load of 10 gm. must be administered and the urine collected for 24 hours thereafter and analyzed for xanthurenic acid. Values over 50 mg. are abnormal and can be reduced by extra pyridoxine. A physiological test that is somewhat more complex depends upon delayed utilization of amino nitrogen in vitamin B_6-deficient human beings and animals. After a load of 30 gm. of alanine, the urea nitrogen level should return to normal in a shorter time than 12 hours. In vitamin B_6 deficient subjects, this clearing effect is delayed and blood urea nitrogen levels remain elevated longer than 12 hours.

Studies.—Vitamin B_6 deficiency has been studied in human beings in three ways: (1) by elimination of the vitamin from the diet, a method that requires a synthetic ration; (2) by counteracting the effect of the vitamin with an antivitamin such as 4-desoxypyridoxine; and (3) by administering the vitamin as a therapeutic test in numerous diseases, some related, others unrelated, to dietary deficiency.

In 1950 Snyderman and his associates [2] studied two hydrocephalic infants maintained on a synthetic diet devoid of vitamin B_6. After 76 days, convulsions developed in one of these infants; after 130 days, anemia developed in the other. Both excreted large amounts of xanthurenic acid in the urine after a load test of tryptophan and failed to excrete a normal amount of N^1-methyl-nicotinamide. All of these abnormalities disappeared after pyridoxine was administered, the N^1-methyl-nicotinamide excretion being the last to return to normal. Greenberg and others [3] maintained two adult subjects on a vitamin B_6 deficient diet for three weeks. Although the period was too short for the development of symptoms and signs, excessive amounts of xanthurenic acid appeared in the urine after a tryptophan load. In another attempt, one subject was maintained on a vitamin B_6 deficient diet for 54 days, but no manifestations of deficiency disease developed.

Vilter and associates [4] studied the problem of vitamin B_6 deficiency in 50 volunteer patients with the aid of the metabolic antagonist 4-desoxypyridoxine. Some were maintained on a vitamin B_6 deficient diet, and others were given a normal hospital diet. The deficiency state developed more rapidly in those on the deficient regimen but occurred in both groups. It could be reversed completely by pyridoxine or its relatives and reversed partially by the essential fatty acid linoleic acid. Many of the patients became irritable, depressed, and sometimes somnolent. Others were not affected mentally. Seborrheic dermatitis developed in the nasolabial fold, in the eyebrows, and around the eyes in 29 of the patients. It spread over the face, forehead, and chin, up into the hair, and down the neck. In several persons it involved the perineal region also. Intertrigo developed under the breasts and in the groin in several women, and occasionally a hyperpigmented, scaling, pellagrous-like dermatitis developed on the arms and legs. Cheilosis, angular stomatitis, and conjunctivitis developed in six. Glossitis was noted in 14, and peripheral neuritis was a prominent feature in 3. Lymphopenia occurred regularly, but anemia that occurred could not be related to the vitamin B_6 deficiency state. After tryptophan was administered, large amounts of xanthurenic acid appeared in the urine. Urea nitrogen levels were elevated and, after the administration of alanine, remained so for longer than 12 hours. All these abnormalities were relieved by administration of the members of the vitamin B_6 group but were not influenced by thiamine, niacin, or riboflavin. Linoleic acid relieved the skin lesions but had no effect on the other clinical or laboratory features. This study indicates that vitamin B_6 deficiency in human beings is not very different from the syndrome observed in laboratory animals and also indicates that it encompasses all the features of mixed vitamin B complex deficiency disease.

Incidence.—Although it seems probable that vitamin B_6 deficiency disease is very rare because of the presence of this nutrient in many common foodstuffs, the deficiency state would be difficult to recognize since it mimics so closely other vitamin B complex deficiency diseases. However, there is evidence that it does exist under special circumstances. In 1939, Spies and others [5] reported that patients with mixed vitamin B complex deficiency disease who had been treated with nicotinic acid, riboflavin, and thiamine remained weak, nervous, irritable, and sleepless until they received pyridoxine. Muscle weakness as demonstrated by ergographic records was noted in pellagrins in Egypt by Hammouda and Sidky.[6] This weakness was not relieved by nicotinic acid but was by pyridoxine; however, I was unable to find chemical evidence of vitamin B_6 deficiency in Egyptian pellagrins.

In 1939, Smith and Martin [7] reported that pyridoxine was effective in healing cheilosis and angular stomatitis

---

2. Snyderman, S. E.; Holt, L. E., Jr.; Carretero, R., and Jacobs, K.: Pyridoxine Deficiency in the Human Infant, J. Clin. Nutrition **1**: 200 (March-April) 1953.

3. Greenberg, L. D.; Bohr, D. F.; McGrath, H., and Rinehart, J. F.: Xanthurenic Acid Excretion in the Human Subject on a Pyridoxine-Deficient Diet, Arch. Biochem. **21**: 237 (March) 1949.

4. Vilter, R. W., and others: The Effect of Vitamin B_6 Deficiency Induced by Desoxypyridoxine in Human Beings, J. Lab. & Clin. Med. **42**: 335 (Sept.) 1953.

5. Spies, T. D.; Bean, W. B., and Ashe, W. F.: A Note on the Use of Vitamin B_6 in Human Nutrition, J. A. M. A. **112**: 2414 (June 10) 1939.

6. Hammouda, M., and Sidky, M.: Pyridoxine, an Essential Factor in the Restoration of Muscle Power of Egyptian Pellagrins, J. Roy. Egyptian M. A. **35**: 413, 1952.

7. Smith, S. G., and Martin, D. W.: Cheilosis Successfully Treated with Synthetic Vitamin B_6, Proc. Soc. Exper. Biol. & Med. **43**: 660 (April) 1940.

that did not respond to riboflavin. Much more convincing evidence that pyridoxine deficiency can occur in infants under natural conditions was inadvertently produced when a commercial liquid milk product was processed in such a way that the vitamin B_6 content was reduced to about 60 mcg. per liter. At the same time, the source of fatty acids was changed. Apparently as a result of either one or both of these maneuvers, convulsive seizures occurred in many infants who were fed this product.[8] In all, 60 infants between the ages of 2 and 4 months were observed in two studies. Convulsive seizures were accompanied by rapid pulse, gasping respirations, and abnormal color, and electroencephalograms were abnormal. In most of the infants, dietary change alone was sufficient to relieve the convulsions. In one infant, an intramuscular dose of 100 mg. of pyridoxine relieved the convulsions and restored the electroencephalographic pattern to normal in five minutes.

About this same time Hunt and others[9] studied an infant with convulsive seizures. This child was born of a mother who had had much pyridoxine administered during her pregnancy for recurring vomiting. A sibling had died of convulsions shortly after birth. The convulsions of the child studied ceased when a mixed vitamin B complex preparation was administered, only to begin again when it was discontinued. Hunt found that pyridoxine was the active material in the vitamin B complex preparation. At last report, the child was doing well as long as several milligrams of pyridoxine were administered daily. In this case, it was clear that a true deficiency state did not exist. Xanthurenic acid output after a tryptophan load test was normal. For some unknown reason, this child had an unusually high vitamin B_6 requirement, particularly for normal central nervous system function. Thus far, this is the only example of such a condition.

ISONIAZID AND VITAMIN B_6

In 1954, Biehl and Vilter[10] were able to prevent neuritis that occurred in patients who received large doses of isoniazid (N-isonicotinylhydrazine, INH) by giving pyridoxine concurrently. Neuritis developed in 2 to 3% of patients receiving conventional doses of isoniazid (2 to 3 mg. per kilogram of body weight), whereas this abnormality developed in 40% of patients receiving 20 mg. per kilogram of body weight. For prophylaxis, 50 mg. of pyridoxine daily was sufficient. When this work was begun, these investigators were aware that isoniazid inactivated certain decarboxylase enzyme systems that required pyridoxal phosphate as coenzyme and that peripheral neuritis occurred rarely in persons with vitamin B_6 deficiency induced by 4-desoxypyridoxine. They were able to show that increasingly large doses of isoniazid increased the amount of pyridoxal, but not of pyridoxic acid found in the urine and that xanthurenic acid excretion increased after administration of tryptophan, but in an irregular fashion. These investigators propose that isoniazid may couple with pyridoxal to form a pyridoxal isoniazid hydrazone, thus inactivating enzyme systems dependent on pyridoxal and causing large amounts of a hydrolyzable vitamin B_6 compound to appear in the urine. In this manner a conditioned vitamin B_6 deficiency state might be induced.

Recently, a relationship between isoniazid and vitamin B_6 insufficiency has been established in rats.[11] In an Escherichia coli mutant, isoniazid has been shown to inactivate tryptophanase by blocking the entrance of pyridoxal phosphate into the molecule. It does not appear at present that isoniazid inhibits the growth of tubercle bacilli in this fashion, nor that moderate doses of vitamin B_6 interfere with the antituberculous effect of isoniazid.

THERAPEUTIC USE

Pyridoxine or other B_6 vitamins have been used in many conditions that, because of clinical similarities to natural or induced vitamin B_6 deficiency, have encouraged the investigator to perform a therapeutic trial. In a few cases the evidence of benefit is good; in most, it is nebulous.

Because vitamin B_6 deficiency in animals and human infants is characterized by a convulsive disorder, this vitamin has been tried in various doses in epilepsy. Fox and Tullidge[12] did not observe any beneficial effects when the dose administered ranged from 20 to 120 mg. daily for several weeks. Ernsting and Ferwerda,[13] however, in a less carefully controlled series of cases, reported some degree of benefit. More recent work does not support the use of vitamin B_6 as an agent of therapeutic value in most cases of epilepsy, yet there is suggestive evidence that it may have an indirect effect on the metabolic defects that may lead to these convulsive seizures. The elucidation of these relationships must await careful metabolic studies of the future.

Vitamin B_6 has been evaluated as a therapeutic agent in patients with arteriosclerotic and postencephalitic Parkinsonism and in persons with progressive muscular atrophy, amyotrophic lateral sclerosis, and muscular dystrophy. These reports have been reviewed adequately in a previous article on vitamin B_6 in THE JOURNAL.[14] Most of the evidence does not support the therapeutic claims that have been advanced, although apparently a few patients, particularly those with arteriosclerotic Parkinsonism, have been benefited. This field is so beclouded by subjective responses unsupported by objective evidence of improvement that no judgment can be made. In general, these diseases continue to follow their progressive downhill course despite the availability of vitamin B_6 for the past 15 years.

Reports of beneficial effects of vitamin B_6 on various neuritides are also scattered through the medical literature, but these too lack confirmation. It is possible that, in this field, as in that of epilepsy, future investigations may show that vitamin B_6 sometimes induces improvement by activating alternate metabolic pathways, thus circumventing a biochemical defect that as yet has not been discovered. At this time, however, vitamin B_6 cannot be considered to be effective therapy for any of these conditions.

---

[8] May, C. D.: Vitamin B_6 in Human Nutrition: A Critique and an Object Lesson, Proc. Inst. Med. Chicago **20:** 83 (April) 1954.

[9] Hunt, A. D., Jr.; Stokes, J., Jr.; McCrory, W. W., and Stroud, H. H.: Pyridoxine Dependency: Report of a Case of Intractable Convulsions in an Infant Controlled by Pyridoxine, Pediatrics **13:** 140 (Feb.) 1954.

[10] Biehl, J. P., and Vilter, R. W.: Effect of Isoniazid on Vitamin B_6 Metabolism: Its Possible Significance in Producing Isoniazid Neuritis, Proc. Soc. Exper. Biol. & Med. **85:** 389 (March) 1954.

[11] Rosen, F.: Effect of Isonicotinic Acid Hydrazide on Niacin and Pyridoxine Metabolism in Rats, Proc. Soc. Exper. Biol. & Med. **88:** 243 (Feb.) 1955.

[12] Fox, J. T., and Tullidge, G. M.: Pyridoxine (Vitamin B_6) in Epilepsy: A Clinical Trial, Lancet **2:** 345 (Sept. 7) 1946.

[13] Ernsting, W., and Ferwerda, T. P.: Vitamin B_6 (Pyridoxine, Adermine) in Therapy of Epilepsy, Nederl. tijdschr. geneesk. **95:** 3643 (Dec. 8) 1951.

[14] Pyridoxine Hydrochloride (Vitamin B_6): A Status Report, report of the Council on Pharmacy and Chemistry, J. A. M. A. ***147:*** 322 (Sept. 22) 1951.

There are also several reports that pyridoxine has had a beneficial effect on granulocytopenia resulting from drug toxicity and x-ray irradiation; however, use of the damaging drugs was discontinued when administration of pyridoxine was begun, and the course of the patients was such as might have been expected with good supportive treatment alone. Furthermore, vitamin B_6 deficiency in animals has caused neutrophilic leukocytosis, and addition of the vitamin has reduced the leukocyte count. There is no experimental evidence of a stimulating effect of vitamin B_6 on any white blood cell except the lymphocyte. Scattered through the medical literature, one can find reports of beneficial effects of vitamin B_6 on acute and chronic alcoholism and senile involution. The enthusiasm of the investigators, rather than the vitamin B_6 that was administered, was likely responsible for the favorable effects.

Schreiner and his associates[15] noted the morphological and histological similarity of the seborrhea-like lesions that appeared in patients with seborrheic dermatitis of natural origin treated with 4-desoxypyridoxine. There were previous reports that pyridoxine administered orally or parenterally brought about improvement in such skin lesions and in acne as well. Schreiner and his associates were unable to demonstrate any improvement in seborrheic dermatitis of spontaneous origin when pyridoxine was administered orally or parenterally, but, when a cream containing 1 or 2% pyridoxine was applied to the natural lesion, they noted improvement within one to two weeks. The cream alone did not have this effect, and, after use of the pyridoxine cream was discontinued, relapse occurred in most cases within one month. Xanthurenic acid excretion after a tryptophan load test was within normal limits in these patients. In several, sharp differentiation could be made between the effect of the cream alone applied to one side of the face and that of the cream containing 1% pyridoxine applied to the other side. Only the dry type of seborrhea appeared to respond. These observations have not been confirmed by Effersoe,[16] who found that the cream alone induced as much improvement as the cream containing pyridoxine. Both preparations decreased sebum production; therefore, the relationship of vitamin B_6 to spontaneous seborrheic dermatitis is still in doubt.

For many years pyridoxine has been used empirically in women with nausea and vomiting of pregnancy and in persons who vomited after heavy doses of x-ray irradiation or after anesthesia. Only recently, a physiological abnormality involving vitamin B_6 has been demonstrated in the pregnant woman. Wachstein and Gudaitis[17] have shown that pregnant women in the second and third trimester given a test dose of tryptophan excrete abnormally large amounts of xanthurenic acid in the urine when compared with nonpregnant women and that this abnormality is quickly relieved by pyridoxine in doses of 25 mg. daily. They have also shown a small but statistically significant difference between the amount of 4-pyridoxic acid that appears in the urine of pregnant and the amount appearing in the urine of nonpregnant women after a load test with 25 mg. of pyridoxine. McGanity and his associates[18] have demonstrated that pregnant women have lower blood urea nitrogen levels on the average than do nonpregnant women, the lowest levels occurring in women with hyperemesis gravidarum. They showed also that, after a test dose of alanine, the blood urea nitrogen level remained elevated for more than 12 hours in women with hyperemesis gravidarum, whereas it returned to normal levels after this length of time in nonpregnant women. Therefore, it appears that there may be some physiological basis for a practice that had its roots in empiricism but has never been carefully enough controlled to be established as an accepted therapeutic procedure. A double-blind therapeutic trial is still needed badly, however, since there is still no evidence that the metabolic abnormalities of the pregnant woman that are rectified by pyridoxine have any relationship to the nausea and vomiting from which she suffers. Neither is it clear that an actual deficiency of pyridoxine exists. The problem may be a greater than normal need for pyridoxine in certain biochemical reactions related to tryptophan and other amino acids.

There is no supportive experimental evidence regarding the use of pyridoxine in postanesthetic nausea and vomiting and very little for its use in x-ray sickness. Rats treated with total body irradiation handle urea nitrogen in the same way whether vitamin B_6 is administered or withheld. However, there is a general belief that roentgen rays exert a damaging effect on many enzyme systems, especially those for which the B complex vitamins serve as coenzymes. If this is true, vitamin B_6 as well as other B complex vitamins might be helpful in reversing damaging effects.

CONCLUSIONS

It is safe to say that vitamin B_6 is a very important nutrient that is essential for human beings; however, deficiency states occur only under unusual circumstances, with manifestations in the skin, mucous membranes, and the central and peripheral nervous systems. Most of the therapeutic claims for vitamin B_6 are still beclouded by uncertainties. Though much more investigation will be necessary before the role of vitamin B_6 as a therapeutic tool will be firmly established, clinicians should be alert to the symptomatology of vitamin B_6 deficiency so that they may recognize deficiency states that may be conditioned by new drugs, new food processing methods, and other changes in our daily life that cannot be predicted at this time.

---

15. Schreiner, A. W.; Slinger, W. N.; Hawkins, V. R., and Vilter, R. W.: Seborrheic Dermatitis, a Local Metabolic Defect Involving Pyridoxine, J. Lab. & Clin. Med. **40**: 121 (July) 1952.

16. Effersoe, H.: The Effect of Topical Application of Pyridoxine Ointment on the Rate of Sebaceous Secretion in Patients with Seborrheic Dermatitis, Acta dermat.-venereol. **34**: 272, 1954.

17. Wachstein, M., and Gudaitis, A.: Disturbance of Vitamin B_6 Metabolism in Pregnancy, J. Lab. & Clin. Med. **40**: 550 (Oct.) 1952.

18. McGanity, W. J.; McHenry, E. W.; VanWych, H. B., and Watt, G. L.: An Effect of Pyridoxine on Blood Urea in Human Subjects, J. Biol. Chem. **178**: 511 (March) 1949.

THE JOURNAL
OF THE AMERICAN MEDICAL ASSOCIATION
Edited Under the Direction of the Board of Trustees
Editor and Managing Publisher . . AUSTIN SMITH, M.D.
Associate Editor . . . . JOHNSON F. HAMMOND, M.D.
Editor for Medical Literature Abstracts . GEORGE HALPERIN, M.D.
Assistant Editor . . . . WAYNE G. BRANDSTADT, M.D.

Subscription price . . Fifteen dollars per annum in advance
Cable Address . . . . "Medic, Chicago"

MEDICAL STUDENTS AS SCIENTIFIC DISCOVERERS

Years ago William Osler recorded a pregnant observation in one of his student notebooks. "Experience," he wrote, "is to be measured not by the time served but by the use which a man made of his opportunities." The truth of this comment as it applies to the field of medicine is aptly revealed by Gibson[1] in a recent article on significant scientific discoveries by medical students. Although medical students have played the role of the discoverer for many generations in fields as diverse as chemistry, physics, physiology, anesthesiology, endocrinology, bacteriology, pathology, blood circulation, and neurology, it is apparent that their achievements are not as well known as they might be.

James Blake, who was once called the "Gold Rush Doc," is regarded today as California's first distinguished scientist. While a medical student, at the age of 23, he read a paper before the British Association for the Advancement of Science in which he advanced the theory, based on his own experiments, that the effect of drugs on the body is determined by their chemical structure. He showed that electronegative elements could be arranged in order of their physiological reactions. His grouping of the elements was remarkably similar to that developed 20 years later by Mendeléeff, which is known as the periodic table. Ether was synthesized in 1540 by a student named Valerius Cordus, and a 21-year-old medical student called Humphrey Davy discovered the anesthetic properties of nitrous oxide in Bristol, England. As early as 1800 he wrote: "As nitrous oxide in its extensive operation appears capable of destroying pain, it may probably be used with advantage during surgical operations in which no great effusion of blood takes place."

The field of physics contains numerous undergraduate contributors. One of them, Willem Einthoven, the son of a doctor, distinguished himself during his first year at the medical school in Utrecht, Netherlands, with a paper on the articulations of the elbow joint and on the mechanism of pronation and supination. In 1884, when he was 25 years old, Einthoven's graduation thesis dealt with stereoscopic vision through color differences, a subject of widespread interest today. Later on, his fame was to grow still further when he introduced the electrocardiograph in medical practice. Fortunately, he lived to see his invention recognized and used during his lifetime.

The investigation that Thomas Young, known as "Phenomenal Young," made on the lens of the eye is a monumental tribute to a 20-year-old medical student who within the following year was to be elected a fellow of the Royal Society of London for his achievement. Young had scarcely begun his anatomy course when he was asked to dissect a recently removed ox eye. The ciliary muscles responded to stimulation, thereby compressing the lens and changing its shape. Young immediately recognized that the alleged lengthening and shortening of the eyeball to accommodate for distance was nothing but a myth.

Claude Bernard, the father of experimental medicine, conducted two investigations during his medical school undergraduate days that were to determine his future career. These were concerned with the secretory nerves to the salivary glands and the digestive function of gastric juice. In this connection, it is interesting to note that the salivary glands were discovered by a Danish medical student, Nicolas Stensen. As a student Bernard also studied the cherry-red color of blood that is present in carbon monoxide poisoning. Walter B. Cannon was a Harvard student whose methods of investigating the digestive tract came to be used the world over. After overhearing a conversation on a Boston streetcar about a new machine that could see right through a fully clothed person, Cannon probed the mysteries of the intestine in cats, geese, dogs, frogs, and human beings, first with buttons, then with bismuth, and later with barium. His work on cats eventually initiated a fresh and fruitful line of investigation—the effect of emotions on body functions.

Medical student discoveries are particularly plentiful in the realm of endocrinology. The insulin-secreting cells of the pancreas were found by Paul Langerhans, a medical student who came from a long line of physicians and pathologists in Jena. In his graduation thesis Langerhans presented findings on the cell types of the pancreas, describing for the first time the islet cells that are now known to produce insulin. Soon after, Ivar Sandstrom, a first year medical student at Uppsala, Sweden, discovered the parathyroid glands, first in the dog and then in man.

Student contributors in the field of the nervous system are legion. A noteworthy example is that of Johannes Purkinje, a young Czech who wrote a medical student thesis on color vision that assured his future. The thesis attracted the attention of Goethe, the poet-scientist, and, through him, the brothers von Humboldt. As a result, Purkinje was appointed to the chair of physiology at Breslau, Germany. When the local medical academicians protested against the intrusion of a "foreigner" and petitioned Berlin, Germany, for his removal, the Prussian government replied by building for Purkinje's use the first physiological research laboratory in Europe. The undergraduate researches of Charles Sherrington, who has been designated as the "philosopher of the nervous system," are of wide contemporary interest when entire hemispheres of human brain and large tracts of the spinal cord are sectioned. His first paper dealt with the effects of hemisection of the spinal cord and his second one with the effects of removing a single cerebral hemisphere in the dog. These early efforts in the laboratories of Cambridge University were the first steps in a long, distinguished career. The controversy surrounding Sigmund Freud recently has obscured his status as a comparative neuroanatomist. In this connection, what he wrote as a medical student is significant. His figures on the derivation of the T-shaped dorsal root ganglion cells of the spinal cord are used universally, while his work on phylogenetic levels in the development of the nervous system formed the basis for his later theory of the levels of consciousness in man.

---

[1] Gibson, W. C.: Significant Scientific Discoveries by Medical Students, Scient. Month. 81: 22 (July) 1955.

The story of the circulation of the blood and lymph is charged with the names of undergraduate investigators. William Harvey was a student investigator at the beginning of the 17th century when he conceived the idea that blood held the secret of circulation. The discovery of the true circulation of lymph in the body is entirely due to three medical students: Pecquet of France, Joyliffe of England, and Rudbeck of Sweden. These students, living hundreds of miles apart, independently described the emptying of the lymphatic system into the great veins.

The twin domains of pathology and bacteriology boast student investigators of the caliber of Paul Ehrlich, Edward Jenner, William G. MacCullum, and René Laennec. As a medical school student, Ehrlich grasped the significance of the selective staining of tissues by means of aniline dyes and wrote his first papers on stains for the blood and stains for lead deposited in tissues. As a result of his unusual ability to picture molecular stereostructure, he predicted many new therapeutic compounds, and, while still a student, developed the basic concepts of his famous side-chain theory. Edward Jenner had scarcely begun his apprenticeship training when he learned that persons afflicted with cowpox were protected from smallpox. William G. MacCullum worked out the life-cycle of malaria in birds while a medical student at Johns Hopkins. Finally, René Laennec, inventor of the stethoscope, wrote a remarkable paper on peritonitis as a 19-year-old student of medicine in Paris. From the foregoing it is clear that the record of its young students as scientific discoverers constitutes one of the shining chapters in the accomplishments of the medical profession throughout the centuries.

BIRTH AND DEATH CERTIFICATES

The importance of the information furnished by birth and death certificates has become so well recognized that standardization of some of the essential elements has been adopted internationally at the recommendation of the World Health Assembly. Where local problems make other information desirable, modifications or supplementary sheets may be used. The same general plan is followed in the United States, where the Public Health Service has prepared a new form for both certificates, described elsewhere is this issue of The Journal (page 1184). As with any statistical reporting, the value of the conclusions drawn depends on the completeness and the accuracy of the available data. In order to test the completeness and accuracy of the information reported on a supplemental birth certificate used in Washington, the Bureau of Maternal and Child Health conducted a survey in 1952.[1] From 20 to 44% of the items were found to be incomplete. When the certificates were checked against hospital records, gross discrepancies in the accuracy of the reports were found.

Incomplete records can be returned for completion, but their accuracy must be taken on faith. Physicians, who are rarely in sympathy with paper work, will use their valuable time to fill out these reports more carefully and more willingly if they can be assured that the information requested will really be put to a useful purpose and that supplemental questions will be dropped when this purpose has been achieved. Unfortunately these provisos have not always been observed in the past. Apparently it is easier to set a continuing questionnaire in motion than it is to drop it, but the agencies that use such information can greatly further their aims if they keep the necessity for the information ever before their informants and give them the assurance that their burdens will not be multiplied unduly. The prompt and wide dissemination of reports based on these certificates will give tangible proof of their use and importance.

The new standard forms were designed to keep the certificates up-to-date and to improve accuracy by making some of the questions more specific rather than to introduce innovations. Physicians who fill out these certificates will perform a useful service if they will make sure the information they give is both complete and accurate and if they will use special care in reporting the underlying cause of death.

---

[1] Oppenheimer, E.: Completeness and Accuracy of Medical Information Recorded on Birth Certificates, Am. J. Pub. Health **45**: 1121-1126 (Sept.) 1955.

ORGANIZATION SECTION

EIGHTH NATIONAL MEDICAL PUBLIC RELATIONS CONFERENCE

Hotel Statler, Boston

Monday, November 28, 1955

The National Medical Public Relations Conference is presented by the American Medical Association as a service to state and county societies. It is open to members of the A. M. A. House of Delegates, to officers and public relations committee chairmen of state and county societies, and to medical society and Woman's Auxiliary representatives working in the field of medical public relations.

PROGRAM

REGISTRATION
9 a.m., Ballroom Assembly Foyer

OPENING SESSION
10:30 a.m., Ballroom Assembly

Chairman: WILLIAM G. H. DOBBS, M.D., Torrington, Conn., Chairman, Public Relations Committee, Connecticut State Medical Society

Your Role for the Day

GEORGE F. LULL, M.D., Chicago, Secretary and General Manager, American Medical Association

Keynote Address: What's Ahead for American Medicine.

DWIGHT H. MURRAY, M.D., Napa, Calif., President-Elect, American Medical Association

Symposium: A Look at '56

DAVID B. ALLMAN, M.D., Atlantic City, N. J., Chairman, A. M. A. Committee on Legislation

JOSEPH D. MCCARTHY, M.D., Omaha, Chairman, A. M. A. Council on Medical Service

F. J. L. BLASINGAME, M.D., Wharton, Texas, A. M. A. Trustee

JAMES C. WORTHY, Chicago, Assistant to the Chairman of the Board, Sears Roebuck and Company

LEO E. BROWN, Chicago, Director, A. M. A. Department of Public Relations

LUNCHEON
12:15 p.m., Ballroom

Where Goes Our Nation?

ERLE COCKE JR., Atlanta, Ga., Vice-President, Delta Airlines

GENERAL SESSION
2 p.m., Ballroom Assembly

Chairman: CONRAD WESSELHOEFT, M.D., Boston, President, Massachusetts Medical Society

Snowballing Social Security

LEONARD E. READ, Irvington-on-Hudson, N. Y., President, Foundation for Economic Education

THOMAS B. CURTIS, Clayton, Mo., Representative, Congress of the United States

Questions and Discussion

The Doctor's Future in America

V. C. ROYSTER, New York, Senior Associate Editor, *Wall Street Journal*

Is Free Enterprise Here to Stay?

WALLACE F. BENNETT, Salt Lake City, U. S. Senator

SUMMING UP: AMERICA '56
4:30 p.m., Ballroom Assembly

EDWARD J. MCCORMICK, M.D., Toledo, Ohio, Past-President, American Medical Association

SPECIAL SCREENING: "BABY TIME"
4:45 p.m., Ballroom Assembly

Screening of new commercial television show produced in cooperation with the American Medical Association

APPEAL FOR CONTRIBUTIONS TO MEDICAL EDUCATION FOUNDATION

A special appeal, the annual American Medical Education Foundation tax mailing, will be sent to all members of the American Medical Association five weeks earlier this year. The appeal will be signed by Dr. Elmer Hess, President of the A. M. A., and will include an AMEF tax folder showing the importance of tax savings by contributing now to the American Medical Education Foundation. During the first nine months of the current campaign, contributions amounted to $540,343.33, compared with $996,198.75 received during the same period last year.

The number of contributors to the Foundation has increased during this period, but the income is $455,855.52 less than it was a year ago. The Foundation has picked up less than $45,000 in individual contributions this year. To maintain last year's record, the Foundation must raise $455,000 during the remaining 10 weeks of the current AMEF campaign. State medical society officers and particularly AMEF state chairmen can give added impetus to the annual tax appeal by contacting county chairmen and enlisting their assistance in personally soliciting donations at the county level.

Five state medical societies have contributed treasury gifts to AMEF during 1955. They include: Massachusetts, $3,000; Tennessee, $1,000; Oregon, $5,000; New Jersey, $25,000; and Virginia, $2,000. Following the Illinois plan (which netted approximately $170,000 for AMEF this year from members of the Illinois State Medical Society), members of the Nevada State Medical Association contributed $3,040 to the Foundation's 1955 campaign. AMEF has also been advised that members of the House of Delegates of the Kansas Medical Society voted treasury gifts in the amount of $2,100 each year for three years, with the moneys earmarked for the Foundation.

At no time has the need been so great for individual financial support of AMEF. The medical profession pledged 2 million dollars annually in 1951 to assist the nation's medical schools, and AMEF income exceeded 1 million dollars in 1953 and 1954. Unless increased individual support is forthcoming during the remaining 10 weeks of the 1955 campaign, the Foundation's total income will be the lowest in its history. Take advantage of the special tax appeal and contribute to AMEF now! With the support of every member of the medical profession, the Foundation can achieve its annual 2 million dollar goal and maintain high medical teaching standards without federal subsidies.

LAHEY AWARD TO HERBERT HOOVER

Former President Herbert Hoover was presented the Frank H. Lahey Memorial award Oct. 19 in his apartment at the Waldorf-Astoria Towers, New York. The presentation was made by S. Sloan Colt, New York, president of the National Fund for Medical Education, of which Mr. Hoover is honorary chairman. Present were Dr. Elmer Hess, of Erie, Pa., President of the American Medical Association, and Dr. Joseph C. Hinsey, director of New York Hospital–Cornell Medical Center, representing the Association of American Medical Colleges. The two medical associations and the National Fund for Medical Education jointly sponsor the Lahey award for outstanding leadership in medical education.

Left to right: Joseph C. Hinsey, S. Sloan Colt, Mr. Hoover, and Elmer Hess.

Mr. Colt told the former President: "You saw our great universities facing financial disaster through the cost of maintaining medical schools that were fast becoming a serious drain on their parent institutions. Your vision comprehended the continuing role of research in the advancement of medical skills and the alleviation of disease. And you recognized the debt owed by industry and the business community to the benefits of medicine, a debt that must be acknowledged in their support of the medical schools."

In accepting the award, Mr. Hoover declared that the responsibility for finding funds for the medical schools "does not lie upon our medical men but upon laymen and industry. . . . The nation is indebted for this great effort to set medical education and medical research on the road to solvency for upon it rests the health and security of our people."

The National Fund for Medical Education was formed in 1949 under the leadership of former President Hoover; President Eisenhower, at that time president of Columbia University; Dr. James B. Conant; and other educators and university presidents. President Eisenhower was the first recipient of the Lahey award in a ceremony at the White House last November. In the brief period since organization of the fund, nearly 9 million dollars has been raised from industry, the medical profession, foundations, and individuals.

FEDERAL MEDICAL LEGISLATION

First Session, 84th Congress

The 84th Congress convened Jan. 3, 1955, and adjourned sine die Aug. 2, 1955. During this period 11,914 legislative measures were introduced in the Senate and House. All of these were screened for possible medical significance, and 404 were summarized and reported by the Washington Office of the A. M. A., roughly, 3.4% of all the measures introduced. This is only 3 less than were reported in both sessions of the 83rd Congress and is 156 more than were reported in both sessions of the 82nd Congress. The chief legislative measures are briefly summarized below.

Numerically, the most common measures of interest to the medical profession as such dealt with social security. Of 58 such bills, none became public law. A series of amendments to the Social Security Act were proposed in H. R. 7225, which was passed by the House without hearings and without the opportunity to make amendments on the floor. One day's open hearing to receive the administration's viewpoint on this measure was held in the Senate, but no further hearings were held and no further action was taken on the bill. This would include, among other provisions, the lowering of the age at which disabled covered employees could receive cash retirement benefits from 65 to 50. Veterans' legislation was proposed in 46 different measures, none of which became public law.

Salk vaccine was the subject of 33 measures and much argument and lengthy hearings on how far the government should go in the control and distribution of the vaccine. The resulting measure was Public Law 377, which provided 30 million dollars in grants to be used by Feb. 15, 1956, to help the states finance state immunization programs. Tax deductions were proposed in 29 measures, but none became public law, although the Jenkins-Keogh proposal, H. R. 9 and 10, was acted upon favorably by the House Finance Committee but not reported to the House. This measure would allow tax postponement for limited amounts placed in selected retirement funds.

Military Medicine and Defense

There were 26 proposals dealing with military medicine and defense matters. One of these, S. 2587, would give military status to the commissioned officers of the Public Health Service during periods of national emergency as well as during war. The bill was reported to the Senate floor without hearings and passed, but no hearings were held in the House and the measure was not voted out of Committee there. The "Doctor-Draft" act was extended for two years as a part of a measure extending the basic Selective Service Act and certain benefits for the dependents of the men in uniform. Included

---

Prepared by the Washington Office of the American Medical Association.

was the $100-per-month equalization pay for physicians, dentists, and veterinarians. The "Doctor-Draft" act was modified to lower the age limit for call from 51 to 46 years. A new provision would provide that any physician rejected on application for a commission solely for physical reasons would no longer be liable for induction on reaching age 35. The Public Law is 118. There was no chance to have a clear-cut vote on just the doctor draft. At the present time, however, new legislation is prepared to make the military medicine more attractive as a career, thus eliminating the need for the extension of the doctor draft.

Reserve commissions were authorized for male nurses in the armed services by Public Law 294. A measure to commission osteopaths in the Medical Corps of the armed services passed the House but was assigned to a special committee in the Senate; no hearings were held and no further action taken. Measures to provide medical care for the dependents of the uniformed services were introduced but no hearings held. Committee work is continuing on this subject.

Agency for Handicapped, Mental Health, and Drug Addiction

A proposal to establish an independent agency for the handicapped, placed for housekeeping purposes in the Department of Labor, was proposed in 23 measures. Hearings were not held and no action taken on any of the bills. Mental health was the subject of 18 measures introduced in the first session. From these measures, Public Law 182 was passed, which authorized the appropriation of $1,250,000 over a three-year period to make a survey of mental health problems and existing programs in this field. This study would be conducted by a nongovernment group or groups, and $250,000 was appropriated for the first year. Hearings were held in the House and a bill favorably reported that would provide for construction of hospital and other facilities for a mental health program for the mentally ill of Alaska, but the measure was not voted upon. Hearings were held on the administration's proposal for direct grants to states on the need, population, per-capita-income formula for mental health programs, but no action was taken.

Drugs and drug addiction were the subjects of 17 proposals. Authority was given to the Commissioner of Narcotics to subpoena narcotics records by Public Law 362. The Senate passed a measure to authorize the Senate Judiciary Committee to study the narcotics problem in the United States and hearings are now being held.

Miscellaneous Bills

A series of 16 bills was devoted to medical education. Hearings were held in both the House and Senate on a measure to provide construction grants for medical schools, but no further action was taken. Hearings were held on a military medical scholarships bill in the House, but the bill was not reported. Water and air pollution was the subject of 16 measures, of which one, S. 928, became Public Law 159. This authorized a 25 million dollar appropriation over a five-year period for grants to states, local governments, private groups, and individuals for research, training, and demonstration projects in air pollution abatement. A measure to allow the shipment of live scorpions in U. S. mail became Public Law 108.

A number of other measures received committee attention, and some passed one House but not the other. Those passing one House included a proposal to give grants to construct laboratory research facilities; another would extend the Water Pollution Control Act until 1960 and authorize an appropriation of 2 million dollars a year in grants for pollution prevention. Those upon which hearings were held but no further action taken included a proposal to provide teaching grants and scholarships for practical and professional nursing training. Another measure that would amend the Biologics Control Act to give the Secretary of the Department of Health, Education, and Welfare authority to control both distribution and use of certain biologicals got no further than the committee hearings. A subcommittee of the Senate Judiciary Committee held hearings on the Bricker amendment, which would limit the treaty-making powers of the President. All measures not acted upon are still before the committees and can be acted upon until the close of the 84th Congress, which starts sessions again in January.

NEW PUBLICATIONS

To All My Patients, a leaflet briefly explaining the role of the various members of the medical team and discussing health insurance, medical care, service, fees, and other aspects of medical practice. Designed for distribution by physicians to their patients, perhaps as an enclosure with their monthly statements or in their reception rooms. Copies may be had by addressing the Public Relations Department at A. M. A. headquarters.

Report on Medical Care for the Indigent, a booklet giving the findings of staff members who visited 11 communities and seven states for the Committee on Indigent Care to learn the characteristics of their organized indigent medical programs. Most of this material is a reprint from various recent issues of THE JOURNAL of articles originally prepared by the Council on Medical Service.

Roster of Executives of State and County Medical Societies. This pamphlet, prepared by the Council on Medical Service, is a revision up to September, 1955, of previous lists of state and county medical society executives along with their addresses and telephone numbers; it contains also a roster of state and county society journal editors.

What's Up with Our Medical Schools? prepared by the A. M. A., highlights the progress being made in medical education in the United States.

Do You Make Par as a Patient? reprint from *Family Weekly* magazine, asks patients pertinent questions designed to find out if they are good patients.

Free Health Care for Everyone? from the United States Chamber of Commerce, discusses the economics of medical care in the nation.

The last three publications are being made available to state and county medical societies for distribution to the public.

MEDICAL NEWS

CALIFORNIA

Fund for Cancer Research.—A $100,000 trust fund for cancer research at the medical center on the Los Angeles campus of the University of California has been established by James and Lorena Greims of Encino. The fund will be used for certain surgical problems associated with cancer under the direction of Dr. George A. Stevens, clinical professor of surgery.

Dr. Holman Honored.—The August number of the *Stanford Medical Bulletin* was issued as a "Festschrift" for Dr. Emile F. Holman, San Francisco, who retired Sept. 1 as head of the department of surgery at the Stanford University School of Medicine after 30 years of service on the faculty. The special issue contains 25 articles contributed by his colleagues and former students. Dr. Arthur L. Bloomfield, emeritus professor of medicine, in the introduction to the Festschrift said, "Dr. Holman has always possessed in high degree that fundamental curiosity which is the essential prerequisite for true research. In all he has no less than 163 titles to his credit."

University News.—Plans to build a $1,500,000 basic science building for the University of Southern California School of Medicine across from the Los Angeles County Hospital were announced recently. The building will consolidate all medical instruction of the university on one campus. On the lower floors will be facilities for undergraduate laboratories in biochemistry, physiology, pharmacology, pathology, microbiology, and anatomy. On the upper floors will be faculty offices and research laboratories. There will also be a series of larger laboratories for advanced specialized research. When other funds become available, a second unit of the basic science building will be built. Also planned are a medical library, an auditorium, a student cafeteria, and administrative offices. When the entire project is completed, the medical center will occupy a 10 acre area and will cost about 5 million dollars.

DISTRICT OF COLUMBIA

Hospital News.—At the annual outing of the Providence Hospital Alumni Association it was announced that the one million dollar goal of the New Providence Hospital Building Fund had been exceeded. Providence doctors raised $147,874 among themselves, exceeding their quota by $35,000. The eight million dollar hospital now under construction in Washington, D. C., is expected to be completed by December.

ILLINOIS

Downward Trend of Disease.—According to the State Department of Public Health, case reports for all but 4 of some 21 notifiable diseases were lower in the first three quarters of 1955 than in the corresponding period of 1954. Among the diseases showing significant declines this year are: infectious hepatitis, with a reduction in case reports of about 50%; poliomyelitis, 30%; syphilis, 11%; and pneumonia and influenza combined, 10%. Case reports of measles dropped from 32,026 in the first 9 months of 1954 to 12,087 this year, whereas scarlet fever declined from a total of 3,086 cases to 2,334. The four diseases responsible for higher morbidity this year than in the first three quarters of 1954 are chickenpox, with an increase in case reports of about 60%; tuberculosis, 22%; mumps, 18%; and gonorrhea, 6%.

Chicago

Dr. Braceland to Lecture.—The inaugural address in neuropsychiatry of the Leo A. Kaplan Memorial Lectureship of the Phi Delta Epsilon Foundation will be given at the Drake Hotel on the evening of Nov. 29 by Dr. Francis J. Braceland, psychiatrist-in-chief, Institute of Living, Hartford, Conn. Dr. Braceland is president-elect of the American Psychiatric Association.

Appoint Associate Professor of Ophthalmology.—Dr. Bertha A. Klien has been appointed associate professor of ophthalmology in the department of surgery, University of Chicago School of Medicine. Dr. Klien is a winner of the A. M. A. gold medal for a scientific exhibit on Diseases of the Fundus Oculi, which was awarded at the 1948 meeting of the A. M. A. in Chicago, and of the silver medal of the Illinois State Medical Society.

Course on Arrhythmias.—An advanced course on interpretation of complex arrhythmias (intended only for experienced electrocardiographers) will be given at Michael Reese Hospital by Drs. Louis N. Katz, Richard Langendorf, and Alfred Pick. The class will meet daily from 9 a. m. to 5 p. m., Dec. 5-9. Information may be obtained from Secretary, Cardiovascular Department, Medical Research Institute, Michael Reese Hospital, Chicago 16.

Grants and Fellowships in Cardiology.—The Chicago Heart Association offers grants-in-aid for research in cardiovascular diseases and related fields, ranging up to a maximum of $10,000. Grants, made for a fiscal year that runs from July 1 to June 30 inclusive, may be renewed on application and annual review. Completed application is due Dec. 1, to be effective the following July. For information write to: Chicago Heart Association, 69 W. Washington St., Chicago 2, Attention: Program Coordinator.

Society News.—Newly elected officers of the Chicago Urological Society include: Dr. Joseph H. Kiefer, president; Dr. Knowlton E. Barber, vice-president; and Dr. Don E. Murray, secretary-treasurer.——Newly elected officers of the Chicago Society of Allergy include: Dr. Simon S. Rubin, Gary, Ind., president; Dr. Helen C. Hayden, president-elect; and Dr. Norman J. Ehrlich, secretary-treasurer.——The Chicago Society of Internal Medicine recently elected Dr. Arthur R. Colwell, president; Dr. Fred E. Ball, vice-president; and Dr. Franklin A. Kyser, Evanston, secretary-treasurer.——Newly elected officers of the Chicago Gynecological Society include: Dr. Magnus P. Urnes, president; Dr. Ronald R. Greene, president-elect; Dr. Solomon J. Benensohn, vice-president; Dr. Robert A. Beebe, treasurer; and Dr. Clyde J. Geiger, secretary.

KANSAS

Training in Administrative Psychiatry.—An experimental training program in psychiatric hospital administration has been initiated at the Menninger Foundation, Topeka, with cooperation from the Winter Veterans Administration Hospital and Topeka State Hospital. First trainees in the project are Dr. Robert Allen Haines, on leave as superintendent of Apple Creek (Ohio) State Hospital, and Dr. George Zubowicz, formerly director of allied clinical services at Topeka State Hospital. The program is the first to provide a one-year formal training period required by the American Psychiatric Association, which in 1953 issued standards for examining and certifying medical hospital administrators. Dr. Robert C. Anderson, manager of Winter Veterans Administration Hospital, is director of the program. Physicians wishing information about the program may write to John R. Malban, assistant director of the program, at the Menninger Foundation, Topeka.

KENTUCKY

"Oscar Allen Day."—The citizens of Beaver Dam and its surrounding countryside recently honored Dr. Oscar Allen for his 50 years of service to the community. Dr. Arthur T. Hurst, Louisville, vice-president, Kentucky State Medical Association, represented Dr. Clyde C. Sparks, Ashland, president, Kentucky State Medical Association, along with Dr. Walter L. O'Nan, Henderson, councilor for the second district, in which Dr. Allen

---

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

lives, and Dr. J. Gant Gaither, Hopkinsville, the association's president-elect. Music played during the program was by an orchestra made up entirely of Dr. Allen's grandchildren. After the ceremony a reception was held at the school.

MAINE

Course in Infectious Diseases.—A refresher course in infectious diseases is offered at the Central Maine General Hospital, Lewiston, by Dr. Louis Weinstein, associate professor of medicine, Boston University School of Medicine. Dr. Weinstein's lecture Nov. 23 (1-4 p. m.) will concern infections of the cardiovascular system, including bacteremia, septicemia, endocarditis, and thrombophlebitis, and recent concepts in the treatment of rheumatic fever. On Dec. 1 he will consider infections of the nervous system.

MASSACHUSETTS

Hospital Centennial.—Massachusetts Memorial Hospitals, Boston, will celebrate its centennial, Nov. 21, with an all-day session about "Health for the American People." Massachusetts Memorial Hospitals, which served 26,000 patients last year, is a group comprising the Evans, Collamore, Robinson, and Talbot memorial hospitals on Harrison Avenue, the Haynes Memorial Hospital on Allston Street, and the Medical Associates on Commonwealth Avenue in Boston. It is closely integrated with the Boston University Medical School. Dr. Chester S. Keefer is physician-in-chief of the hospital group and director of the medical school. Dr. Philip D. Bonnet is administrator of the hospitals. On Sunday, the day preceding the official centennial celebration, the public is invited to an open house at the main hospital on Harrison Avenue. All other sessions will be at the Hotel Statler. Monday will be devoted to panels on organization of health services, paying for health services, and community action for health. Physicians participating will include: Dr. Keefer; Drs. Dean A. Clark, general director, and Robert W. Wilkins, associate physician-in-chief of the hospitals; and Drs. Edwin F. Daily, New York, Donald M. Clark, Andover, Mass., George Crile Jr., Cleveland, and Leonard A. Scheele, Washington, D. C. The centennial banquet address, 7 p. m., will be delivered by Dr. Howard A. Rusk, professor of physical medicine and rehabilitation, New York University College of Medicine, New York City.

MICHIGAN

Dr. Buxton Goes to Baltimore.—Dr. Robert William Buxton, formerly associate professor of surgery, University of Michigan Medical School, Ann Arbor, has been appointed chairman, department of surgery, University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore. Dr. Buxton was formerly affiliated with the Strong Memorial Hospital and Genesee Hospital in Rochester, N. Y.

NEBRASKA

Dr. Potthoff Named Director of Preventive Medicine.—Dr. Carl J. Potthoff has been appointed director of the department of preventive medicine at the University of Nebraska College of Medicine, Omaha. Previously Dr. Potthoff had been associate national medical director of the American Red Cross and had divided his time between the department of preventive medicine and the Omaha-Douglas County Health Department, where he served as assistant commissioner of health.

NEW YORK

Dr. Babbott Honored.—Dr. Frank L. Babbott, former president of the Long Island College of Medicine, Brooklyn (now the State University of New York College of Medicine at New York City), was awarded the honorary degree of doctor of laws during the centennial celebration of the Polytechnic Institute of Brooklyn, of which he has been a member for 29 years.

Lucien Howe Medal to Dr. Bedell.—At a recent meeting of the American Ophthalmological Society, Dr. Arthur J. Bedell, Albany, was awarded the Lucien Howe medal in recognition of his distinguished service in ophthalmology. Dr. Bedell, professor emeritus of ophthalmology at Albany Medical College since 1941, is attending ophthalmologist at St. Peter's Hospital, the Child's Hospital, the Old Ladies Home, and the Albany Home for Children. He was the A. M. A. delegate to the British Medical Association in 1936, winner of the A. M. A. silver medal for a scientific exhibit in 1928. The Section on Ophthalmology has bestowed on him its Prize Award in Ophthalmology and the Herman Knapp gold medal. The Medical Society of the State of New York awarded him the Lucien Howe prize for research in ophthalmology in 1922, 1924, 1927, 1936, and 1938, and the University of Buffalo the Howe Ophthalmological prize this year (The Journal, July 9, 1955, page 858).

School for Retarded Children.—Governor Averell Harriman has announced that the department of mental hygiene will construct a school for retarded children in West Seneca in Erie County. The school, expected to cost more than 30 million dollars, is the first of four institutions planned under the department's building program, for which voters approved a 350 million dollar bond issue in 1954. Designed for 2,400 patients, it will be provided with service facilities for future expansion, if required, to 3,000. The school will be constructed on a modified cottage plan in which all buildings will contain dining rooms, making it unnecessary for the children to leave their home buildings for meals. The kitchens will be centralized. The school will also include a hospital to care for the acutely ill, classrooms and vocational training facilities for the educable, a training center for the more severely retarded, facilities for a rehabilitation service for the physically handicapped, and a special building for very young children. It is also planned to provide small units for a special psychiatric program for children who show transient emotional disturbances. The school will serve the counties of Erie, Niagara, Orleans, Genesee, Wyoming, Allegany, Cattaraugus, and Chautauqua, with about 75% of the prospective patients coming from Erie and Niagara counties.

New York City

Doctors' Orchestral Society.—The Doctors' Orchestral Society of New York held its first rehearsal Sept. 29, at Public School 33, Ninth Avenue and 26th Street. Rehearsals are held every Thursday at 8:15 p. m. Several concerts are planned for this season under the direction of the new conductor, Mr. Maxim Waldo. Dr. Alfred E. Mamelok (115 E. 61st St., New York 21) is president of the group. All musician members of the medical profession or allied healing arts are invited to join the orchestra.

Dr. Louis Bauer Honored.—Dr. Louis H. Bauer, secretary-general, World Medical Association, and past-president, American Medical Association, recently was awarded the degree of doctor of science, honoris causa, by the University of Sydney, Australia. Dr. Bauer presented the Sir Henry Simpson Newland Oration at the ninth Australasian Medical Congress in Sydney and the Joseph Bancroft Oration before the Queensland Branch of the Australian Medical Association in Brisbane. Before returning to the United States, he visited various branches of the British and Australian medical associations and also the headquarters of the Philippine Medical Association in Manila.

Dr. Cahill Retires as Director.—Dr. George Francis Cahill is retiring as director of the urologic service and as professor and executive officer at Columbia University but will continue to serve as consultant to the hospital and professor emeritus. Dr. Cahill, one of those who helped build up the J. Bentley Squier Urological Clinic, plans to write a history of the clinic, raise funds for its expansion, and, with other staff urologists and physicians, prepare a textbook on the adrenals. Among his major contributions are his classification of tumors of the adrenals and, with Dr. Marcel Goldenberg, the initiation of a test for pheochromocytoma. Dr. Cahill has been president of the American Urological Association and of the American Board of Urology, is consultant to numerous hospitals, and, from 1946 to 1949, was president of the Presbyterian Hospital's medical board.

Personal.—Dr. Joseph E. Rall has been selected as head of the clinical endocrinology program at the National Institute of Arthritis and Metabolic Diseases, Bethesda, Md.——Dr. Paul S. Seager, who has been affiliated with the New York University

Postgraduate Medical School since 1935, has been promoted to professor of clinical otorhinolaryngology.——Charles Glen King, Ph.D., scientific director of the Nutrition Foundation, New York, has been appointed a member of the National Advisory Arthritis and Metabolic Diseases Council.——Dr. Gregory Zilboorg, clinical professor of psychiatry, State University of New York College of Medicine at New York City, addressed the Long Island Psychiatric Society at the Veterans Administration Hospital, Northport, L. I., on "Growing Conflicts Between Clinical and Theoretical Psychiatry."——Dr. Frederick S. Reiss, associate clinical professor of dermatology, New York University Post-Graduate Medical School, recently attended the International Medical Conference in Verona, Italy, where he participated in the symposium on stress and lectured on "Stress and Psoriasis."——Dr. Franz J. Kallmann, professor of psychiatry, Columbia University College of Physicians and Surgeons, recently addressed the members of the hospital staff of the Veterans Administration Hospital at Northport, L. I., on "Genetic Aspects of Preadolescent and Adult Forms of Schizophrenia."

NORTH CAROLINA

Cruise Conference for Practitioners.—The North Carolina Academy of General Practice will present a postgraduate course, including 25 hours of formal teaching, aboard the M. S. Stockholm, a transatlantic liner that will sail from Wilmington, Nov. 23. During the 12-day cruise, stops will be made at Port-au-Prince in Haiti; Cartagena, on the coast of the Republic of Colombia; the San Blas Islands; Cristobal in the Canal Zone; and Kingston, Jamaica. The cruise, operated by the Allen Travel Service, Inc., 550 Fifth Ave., New York 36, will be sponsored by the Duke University School of Medicine, Durham. The faculty will include: Drs. William McNeal Nicholson, Wilburt Cornell Davison, F. Bayard Carter, Barnes Woodhall, and J. Lamar Callaway.

PENNSYLVANIA

Personal.—Dr. Robert A. Moore, vice chancellor, schools of the health professions, University of Pittsburgh, has been appointed to the National Advisory Cancer Council.——Dr. Henry R. O'Brien joined the staff of the Pennsylvania State Department of Health, Harrisburg, as director of professional training, Aug. 1, following his retirement from the regular corps of the U. S. Public Health Service.

Cardiovascular Research.—The Pennsylvania Hospital, Philadelphia, announces an agreement with the Edna G. Kynett Memorial Foundation to augment the research and teaching facilities in cardiovascular diseases at the hospital. New quarters are being prepared on the fourth floor of the Out-Patient Building. The new, air-conditioned quarters will include space for the present heart station as well as ballistocardiography, cardiac catheterization, and fluoroscopy. The facilities will also include a waiting room for patients, doctors' offices, laboratories, and a library. The foundation and the hospital will share the expense of preparing the new quarters, which necessitates moving the dental and genitourinary clinics and the physical therapy department. The foundation will contribute funds for research equipment and technicians' salaries. The residents and research fellows of the cardiovascular department and the division of medicine of the Pennsylvania Hospital will participate in the new teaching and research programs. Dr. Stephen B. Langfeld will be the director of research for the foundation. Dr. Joseph B. Vander Veer, head, cardiovascular department, Pennsylvania Hospital, will coordinate the services. The new facilities are expected to be ready for occupancy Jan. 1, 1956.

Philadelphia

Semicentennial Celebration.—The section on medical history of the College of Physicians of Philadelphia will observe the semicentennial anniversary year of its founding Nov. 22. After a dinner at the hall of the college (7043 Elmwood Ave.), there will be an address, "Expanding the Use of the Library's Historical Collections," by Walton B. McDaniel II, Ph.D., curator of the Library Historical Collections at the College of Physicians of Philadelphia.

Ophthalmology Chairman Appointed.—Dr. Irving H. Leopold has been appointed chairman of the department of ophthalmology in the University of Pennsylvania Graduate School of Medicine, where he has been a faculty member since 1946. He succeeds Dr. Edmund B. Spaeth, department head for the last 12 years, who is relinquishing the chairmanship but will continue to teach and practice. Dr. Leopold also is director of the research department of Wills Eye Hospital and an attending physician at the hospital. He is in charge of the home study course in physiology of the American Academy of Ophthalmology and Otolaryngology and has served as an associate editor of the *A. M. A. Archives of Ophthalmology*, a consultant to the medical research division of the Army Chemical Warfare Service, and a consultant to the U. S. Public Health Service's study section for neurological diseases and blindness.

SOUTH CAROLINA

Society News.—Newly elected officers of the South Carolina Radiological Society include: Dr. George W. Smith, Columbia, president; Dr. Willis S. Hood, Greenville, vice-president; and Dr. Samuel W. Lippincott, Charleston, secretary-treasurer.

Personal.—Dr. Robert C. Rendtorff, formerly of Columbia, has joined the staff of the University of Tennessee College of Medicine, Memphis, as assistant professor of preventive medicine. He previously was connected with the virology laboratory of the University of Michigan, Ann Arbor.

Medical College Hospital.—The 11 million dollar Medical College Hospital, which adjoins the Medical College of South Carolina in Charleston, was opened for public inspection on Aug. 10. The hospital, which occupies the entire block bound by Ashley, Mill, Lucas, and Doughty streets, was built with state and Hill-Burton funds on property provided by the county of Charleston. The first hospital built by the college was erected in 1840 at the west end of Broad Street "for the purpose of furnishing instruction at the bedside of the sick, for Medical Students in the annual Classes." The new 10-story hospital has about three miles of corridors. Two emergency generators turn on automatically in two seconds when power is cut off and within six seconds build up power to carry the entire electrical load. Oxygen, piped throughout the building, is available almost everywhere for instant use. According to Dr. Kenneth M. Lynch, president of the Medical College of South Carolina, five state administrations have had a part in planning, building, and opening the new hospital. The dedication ceremonies (May 10), at which Dr. Lynch presided, were opened by Dr. Thomas A. Pitts, chairman, board of trustees. Messages were presented by Dr. Thomas R. Gaines, Anderson, president, South Carolina Medical Association; Dr. John W. Cronin, medical director, chief, Division of Hospital Facilities, U. S. Public Health Service, Washington, D. C.; and Dr. Herman G. Weiskotten, Skaneateles, N. Y., chairman, A. M. A. Council on Medical Education and Hospitals. The dedicatory address was delivered by George Bell Timmerman Jr., governor of South Carolina.

Medical College Hospital in Charleston.

TENNESSEE

Society News.—The Tennessee Radiological Society recently elected Dr. John M. Wilson, Memphis, president; Dr. Ben R. Mayes, Nashville, vice-president; and Dr. George K. Henshall, Chattanooga, secretary-treasurer.

Dr. Freeman Day.—The community of Granville recently honored Dr. Luther M. Freeman when the three churches united in Sunday morning service. In the after-dinner parade Dr. Freeman rode in a 1916 Model-T Ford such as he used in his practice for many years. On a plaque presented to him was inscribed: "To our beloved country doctor, L. M. Freeman, for his untiring years of faithful service in and around the community of Granville, Tennessee, on this day, July 24th, 1955, which marks fifty golden years of medical attention to us."

Personal.—Dr. Douglas H. Sprunt, Memphis, has been appointed to the cancer control committee of the National Cancer Institute of the U. S. Public Health Service.——Dr. Louis F. Rittelmeyer Jr., assistant director, general practice department, University of Tennessee College of Medicine, Memphis, has been named assistant professor of preventive medicine in charge of general practice at the University of Mississippi School of Medicine, Jackson. Dr. Rittelmeyer, formerly of Mobile, Ala., has been affiliated with Mercy Hospital in Chicago and City Hospital in Mobile.——Dr. Ralph M. Kniseley, scientist with Oak Ridge Institute of Nuclear Studies, resigned Aug. 26 to accept a post with the Eden Hospital, Castro Valley, Calif. Before coming to Oak Ridge, he held positions with the Mayo Foundation, Rochester, Minn., and the Lovelace Clinic in Albuquerque, N. Mex.

TEXAS

Hospital News.—The 10 million dollar Parkland Memorial Hospital at 5201 Hines, Dallas, was recently dedicated some 15 blocks from the previous location. The 588-bed hospital, which will still serve as the teaching hospital for Southwestern Medical School of the University of Texas, will provide about twice the space of the old hospital, with an estimated 30% increase in personnel.

Medical Research Foundation.—The Medical Research Foundation of Texas, Inc., announces the selection of the following board of directors: Drs. J. Layton Cochran, president, Texas Medical Association, San Antonio; Francis J. L. Blasingame, Wharton; Hyman W. Paley, Edgar J. Poth, John E. Johnson Jr., Carl A. Nau, and Titus H. Harris, all of Galveston. The purpose of the foundation is to provide funds to medical and dental schools throughout Texas for fellowships and consultantships in research fields in medicine and for the purchase of equipment that cannot be purchased with funds available from other sources. The executive offices are located at University Station in Galveston.

VERMONT

State Medical Election.—Newly elected officers of the Vermont State Medical Society include: Dr. W. Douglas Lindsay, Montpelier, president; Dr. Philip H. Wheeler, Brattleboro, president-elect; Dr. James P. Hammond, Bennington, vice-president; Dr. Robert L. Richards, Grafton, secretary; and Dr. David Marvin, Essex Junction, treasurer.

VIRGINIA

Pathologists Meet in Richmond.—A joint meeting of the Virginia Society for Pathology and the Middle Eastern Region, College of American Pathologists, will be held at the John Marshall Hotel, Richmond, Nov. 26. The program of the morning session, presided over by Dr. Edward D. Levy, Norfolk, follows:

Cell Virus Relationships, Igor Tamm, New York.

Tissue Reaction to Viruses, John P. Wyatt, St. Louis.

Laboratory Diagnosis of Virus Disease, Morris Schaeffer, Montgomery, Ala.

Dr. Arnold F. Strauss, Norfolk, will preside at the afternoon session, during which a slide seminar on virus disease with inclusions will be presented by Drs. Henry Pinkerton and John P. Wyatt, professors of pathology, St. Louis University School of Medicine. Wives of guests are cordially invited to the social hour and dinner (dress informal) at 6 p. m.

Licensure Denied.—The board of medical examiners reports that licensure was denied Dr. Leslie Upton, both by endorsement and examination, on April 7, 1953. Dr. Upton first applied to the board in May, 1951, submitting credentials including an M.D. degree from Middlesex University School of Medicine, Waltham, Mass. According to his credentials he was given credit at Middlesex University for one year of studies completed at the Royal Elizabeth University School of Medicine of Hungary. His application was refused on the basis of the board's requirement that the school of graduation must be registered with the State Board of Education of Virginia as maintaining at the time of such study a standard satisfactory to the board of education based on the grading of the American Medical Association. The latter body has never approved the school. Dr. Upton filed a petition in the circuit court of Fairfax County, Virginia, requesting the court to require the board of medical examiners to show cause why he should not be granted a license under certain reciprocal arrangements in effect between Virginia and the states of Massachusetts and New York, respectively, and, if this relief should not be granted, to require the board to show cause why he should not be admitted to the examination given by the board. In its answer the board denied the existence of any full reciprocal relationship between Virginia and these states and alleged that, as the petitioner's school of graduation did not measure up to statutory requirements for admission to the Virginia examinations, it had no discretionary power to accept his application. The case was fully heard by the court on April 7, 1953; the findings of the board were confirmed; and the petition of Dr. Upton was dismissed. The statute provided that the judgment of the court on the issue was final and not subject to appeal.

WEST VIRGINIA

Memorial Fountain.—A fountain and pool on the grounds of Davis Memorial Hospital, Elkins, were dedicated Sept. 25 to the memory of Dr. Arthur Parker Butt Jr., who died in 1953. The eulogy was delivered by Dr. Charles L. Leonard, Elkins, who was long associated with Dr. Butt in his practice at the hospital. The memorial was donated by friends and associates of the late Dr. Butt.

Personal.—Dr. Herbert M. Beddow, Charleston, was elected president of the West Virginia chapter of the Medical College of Virginia Alumni Association at the annual meeting at White Sulphur Springs, Aug. 20.——Dr. David C. Prickett, recently released from the U. S. Public Health Service after serving as medical officer in charge of a field health center at the Navajo Reservation in New Mexico, has located at Fairmont, where he will engage in general practice.——Dr. Lawrence F. Boland, who has practiced medicine and surgery in Mingo County for 30 years, has accepted appointment as medical director of the Kentucky Training Home, an institution for the care of mentally retarded children and adults, at Frankfort. Formerly located at Sone, Ky., Dr. Stone moved to Williamson in 1921, where he has since practiced industrial surgery.

Grants for Rural Health Centers.—William T. Sanger, Ph.D., Richmond, past-president of the Medical College of Virginia, Richmond, now consultant to the Laird Foundation of Montgomery, announces substantial grants to the foundation by the Avalon and Old Dominion foundations, established by the family of the late Andrew W. Mellon, former secretary of the treasury, which will result in the development of a group of rural health centers in southern West Virginia. The first medical center will be built at Summersville. Over-all plans include expansion of present facilities at Laird Memorial Hospital in Montgomery, a division of Laird Foundation. The rural health centers or clinics will be constructed, equipped, staffed, and operated under the sponsorship of the Laird Foundation, a non-profit corporation established several years ago "for the relief of suffering, the encouragement of medical education, and the promotion of research." They will include space for offices of physicians, examining rooms, laboratories, and bed space for obstetrical and emergency patients.

GENERAL

Iodine Research Award.—The Chilean Iodine Educational Bureau award for 1955 was presented to Domenick Papa, Ph.D., New Jersey chemist, at the annual meeting of the American Pharmaceutical Association in Miami, Fla. Dr. Papa was nominated for the award in acknowledgment of his research in the chemistry of iodine and its compounds as applied in pharmacy and medicine. He has been engaged for the past 14 years in research on iodine compounds and synthetic medicinal agents.

Selected Readings on Rehabilitation.—The Illinois Public Aid Commission, Springfield and Chicago, has assembled in a paperbound book 159 pages of previously published articles by physicians, social workers, and lay writers on various phases of the broad subject of rehabilitation. The object was to select material that would be balanced, suggestive, and helpful toward an understanding of the nature, meaning, and objectives of rehabilitation and to attempt to present the best current thinking in this field.

Relationship of Work to Heart Attacks.—The American Heart Association will support and supervise a study on the relationship between work and exercise and heart disease and heart attacks directed by Dr. Sidney R. Weinberg, assistant medical examiner of New York City. The project will be under the jurisdiction of a joint committee on strain and trauma. A project is also being organized that will have as its purpose the critical analysis of legal decisions concerning cardiovascular cases in relation to workmen's compensation.

Van Meter Prize Award.—The American Goiter Association again offers the Van Meter prize award of $300 and two honorable mentions for the best essays submitted on original work on thyroid gland problems. The awards will be made at the annual meeting of the association at the Drake Hotel, Chicago, May 3-5, 1956. The competing essays may cover either clinical or research investigations, should not exceed 3,000 words, and must be in English. Duplicate typewritten copies, double-spaced, should be sent to the secretary, Dr. John C. McClintock, 149½ Washington Ave., Albany, N. Y., not later than Jan. 1, 1956.

Program in Human Engineering.—The Mellon Institute of Industrial Research, University of Pittsburgh, announces the free availability of a new publication, "Proposed Program in Ergonomics—Human Engineering" by Theodore F. Hatch, S.M., professor of industrial health engineering, Graduate School of Public Health, University of Pittsburgh. The article, which appeared in *Mechanical Engineering* (May, 1955, pages 394-395), describes "a program for the development of human engineering, which deals primarily with the human factor in engineering design. Ergonomics is the basic area of applied science that is concerned with the study of human behavior in response to external stress, with particular reference to the stress-strain problems of man at work." Requests for this two page reprint should be addressed to Mellon Institute, 4400 Fifth Ave., Pittsburgh 13.

Self-Help Devices for the Arthritic Patient.—The national office of the Arthritis and Rheumatism Foundation has made a grant to implement an office for the collection, evaluation, development, and dissemination of information concerning self-help devices for the arthritic patient. The office, located in the Institute of Physical Medicine and Rehabilitation of New York University-Bellevue Medical Center, will be under the direction of Dr. Edward W. Lowman. The primary purpose of the office is to provide, without cost, information on self-help devices and to offer free consultation to arthritic patients by mail, telephone, or personal interview. Patients or physicians who have developed self-help devices are urged to submit them for testing and evaluation. The office may be reached on Mondays and Wednesdays, between 9 a. m. and 5 p. m. Telephone MUrray Hill 6-1842, ext. 85, in New York City.

Oak Ridge Participation Program.—Applications are open to college and university faculty members for places in the Oak Ridge Research Participation Program for 1956, administered by the Oak Ridge (Tenn.) Institute of Nuclear Studies in cooperation with the Oak Ridge National Laboratory. The program is designed to disseminate scientific and technical information to educational institutions by enabling faculty members to spend varying amounts of time—usually the three summer months—conducting research in Oak Ridge laboratories. The participant's Oak Ridge salary approximates his university salary. Applications for three-month summer appointments should be in the hands of the University Relations Division, Oak Ridge Institute of Nuclear Studies, P. O. Box 117, Oak Ridge, Tenn., by Dec. 15. Information may be obtained from the University Relations Division. Notifications of appointment will be made by Feb. 15.

Travel Awards.—The Federation of American Societies for Experimental Biology announces that some 35 travel awards (about $500 each) will be available from its International Physiological Congress Trust Fund for the congress in Brussels, July 29-Aug. 4, 1956. Applicants must not have reached the age of 35 (by July 1, 1956) nor have attained the academic rank of full professor (or its equivalent in other than academic employment). Recipients of travel awards must present papers at the congress. Application for an award is open to those working in any of the fields of the societies of the federation. Applicants for travel awards are urged to make tentative reservations for space with Foreign Services Corporation, 1624 Eye Street, N. W., Washington 6, D. C., before Dec. 25. The closing date for applications for travel awards is Dec. 15. For application forms write: Federation of American Societies for Experimental Biology, 9650 Wisconsin Avenue, Washington 14, D. C.

Aid-to-Education Plan.—Eastman Kodak Company, Rochester, N. Y., recently announced the addition to its aid-to-education program of a plan expected to cost $300,000 in 1955 and to provide financial grants to 50 privately supported colleges and universities whose graduates are employed by the company. Privately supported institutions will receive grants based on the number of their graduates who joined the company during the fifth year preceding the year in which the grants are made and who are currently employed by the company. The grants provide payments to the institutions of $500 for each year spent by an employee at the institution from which he was graduated and at which he completed a regular and established degree program at either the undergraduate or postgraduate levels. An institution must have had at least two graduates employed by Eastman Kodak Company as of Dec. 31, 1949. The cost of the company's over-all aid-to-education program, including the new plan, will total approximately $650,000 in 1955.

United Negro College Fund.—In its 1955 campaign the United Negro College Fund points out that, although the 31 privately supported, fully accredited member colleges and universities of the fund have offered premedical training to 90% of all Negro physicians, as well as a majority of medical technicians, at present there is only one Negro physician per 4,000 Negro population. The fund's member colleges are located in 11 southern states. Since the students of these 31 accredited colleges can pay only 41.2% of the cost of their education, as against the national average of 69.1%, their tuition fee averages only $631. The United Negro College Fund appeals for contributions to secure the remaining 10% of the combined educational budgets of the colleges—$1,750,000 this year. Gifts may be made payable to the United Negro College Fund in the donor's community or may be sent to the national headquarters, 22 E. 54th St., New York, where they will be credited to the city in which the donor lives or in which his company does business. Contributions are deductible for income tax purposes.

Graduate Science Fellowships.—The National Science Foundation offers more than 750 fellowship awards for a year of graduate scientific study during the academic year 1956-1957 in connection with its fifth annual graduate fellowship program. Applications may be obtained from the Fellowship Office, National Research Council, Washington 25, D. C. The closing dates for receipt of applications are Dec. 19 for postdoctoral applicants and Jan. 3, 1956, for graduate students working toward advanced degrees in science. The selections will be announced March 15, 1956. National Science Foundation fellowships are awarded to American citizens who will begin or continue their studies at the graduate level in the mathematical, physical, biological, medical, engineering, and other sciences during the 1956-1957 academic year. About 80 awards will be made to postdoctoral applicants. Such applicants will not be required to take examinations. Annual stipends for National Science Foundation fellowships vary with the academic status of the fellows: first year fellows—students entering graduate school for the first time or those who have had less than one year of graduate study, $1,400; fellows who need one final academic year of training for the doctor's degree, $1,800; fellows between these groups, $1,600 annually; postdoctoral fellows, $3,400. Dependency allowances will be made to all married fellows. Tuition and laboratory fees and limited travel allowances will also be provided. National Science Foundation fellows may attend any accredited nonprofit institution of higher education in the United States or similar institutions abroad.

Society News.—At the 44th annual meeting of the **International Association of Medical Museums** in Houston, Texas, April 5-6, the name of the association was changed to the **International Academy of Pathology.** The next meeting of the organization will be held in Cincinnati, April 24-25, 1956. For information, write to the secretary-treasurer, Dr. Fathollah K. Mostofi, Armed Forces Institute of Pathology, Washington 25, D. C.——Newly elected officers of the **American Orthopaedic Association** include: Dr. Paul C. Colonna, Philadelphia, president; Dr. Charles R. Rountree, Oklahoma City, vice-president; Dr. David M. Bosworth, New York, president-elect; Dr. Mather Cleveland, New York, treasurer; and Dr. George O. Eaton, Baltimore, secretary.——Newly elected officers of the **Society of Biological Psychiatry** include: Dr. Howard D. Fabing, Cincinnati, president; Dr. Margaret A. Kennard, Vancouver, B. C., Canada, first vice-president; Dr. Louis J. Karnosh, Cleveland, second vice-president; and Dr. George N. Thompson, Los Angeles, secretary-treasurer.——Newly elected officers of the **Society for Pediatric Research** include: Dr. Wolfgang W. Zuelzer, Detroit, president; Dr. Nathan B. Talbot, Boston, vice-president; and Dr. Sydney S. Gellis, Boston, secretary-treasurer.——The **American Association for Thoracic Surgery** recently elected Dr. Richard H. Meade, Grand Rapids, Mich., president; Dr. Cameron Haight, Ann Arbor, Mich., vice-president; Dr. Julian Johnson, Philadelphia, treasurer; and Dr. Paul C. Samson, Lafayette, Calif., secretary. The 1956 meeting will be held in Miami Beach, Fla., May 7-9.——At the annual meeting of the **Neurosurgical Society of America,** Dr. Charles E. Troland, Richmond, Va., was elected president; Drs. Eben Alexander, Winston-Salem, N. C., and Claude M. Bertrand, Montreal, Canada, vice-presidents; Dr. Lester A. Mount, New York, secretary; and Dr. I. Joshua Speigel, Chicago, treasurer.——The **American College of Cardiology** recently installed Dr. Walter S. Priest, Chicago, as president; Dr. Simon Dack, New York, was elected president-elect; Drs. J. Maxwell Chamberlain, Seymour Fiske, New York, and John C. Scott Jr., Philadelphia, vice-presidents; and Dr. Philip Reichert, Empire State Building, New York 1, secretary-treasurer.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1955 Clinical Meeting, Boston, Nov. 29-Dec. 2.

1956 Annual Meeting, Chicago, June 11-15.

1956 Clinical Meeting, Seattle, Nov. 27-30.

1957 Annual Meeting, New York, June 3-7.

1957 Clinical Meeting, *Philadelphia*, Dec. *3-6*.

National Medical Public Relations Conference, Hotel Statler, Boston, Nov. 28. Mr. Leo F. Brown, 535 N. Dearborn St., Chicago 10, Director.

American Academy of Dermatology and Syphilology, Palmer House, Chicago, Dec. 3-8. Dr. James R. Webster, 55 East Washington St., Chicago 2, Secretary.

American Academy of Obstetrics and Gynecology, Conrad Hilton Hotel, Chicago, Dec. 13. Dr. C. Paul Hodgkinson, 116 South Michigan Blvd., Chicago, Secretary.

American Association of Blood Banks, Palmer House, Chicago, Nov. 19-21. Miss Marjorie Saunders, 3707 Gaston Ave., Dallas 10, Texas, Secretary.

American League Against Epilepsy, Roosevelt Hotel, New York, Dec. 8. Dr. Peter Kellaway, Baylor University College of Medicine, Houston 25, Tex., Secretary.

American Rheumatism Association, Interim Session, National Institutes of Health, Bethesda, Md., Dec. 9. Dr. Edward F. Hartung, 580 Park Ave., New York 21, Secretary.

Association for Research in Nervous and Mental Diseases, Hotel Roosevelt, New York, Dec. 9-10. Dr. Clarence C. Hare, 710 West 168th St., New York 32, Secretary.

Eastern Section, American Federation for Clinical Research, Hotel Warwick and College of Physician's Building, Philadelphia, Dec. 2-3. Dr. Charles R. Shuman, Temple Univ. Hospital, Broad and Ontario Sts., Philadelphia 40, Chairman.

Eastern Section, American Laryngological, Rhinological and Otological Society, Boston, Jan. 13. Dr. John A. Murtagh, Dartmouth College, Hanover, N. H., Vice President.

Los Angeles Midwinter Medical Convention, Biltmore Hotel, Los Angeles, Jan. 3-5. Dr. Paul D. Foster, 1925 Wilshire Blvd., Los Angeles 58, General Chairman.

Medical Society Executives Conference, Parker House, Boston, Nov. 27. Mr. H. Martin Baker, 1102 South Hillside, Witchita 17, Kansas, Secretary.

New England Health Education Association, Boston, Dec. 2. Miss Wyntha Tompkins, Middlesex Health Association, Essex, Mass., Secretary.

Puerto Rico Medical Association, Santurce, Dec. 7-11. Dr. Luis R. Guzman-Lopez, Box 9111, Santurce, Secretary.

Radiological Society of North America, Palmer House, Chicago, Dec. 11-16. Dr. Donald S. Childs. 713 E. Genesee St., Syracuse 2, N. Y., Secretary.

Regional Meetings, American College of Physicians:

Baltimore, Nov. 19. Dr. R. Carmichael Tilghman, 6 East Eager St., Baltimore 2, Governor.

Vancouver, B. C., Nov. 19. Dr. H. A. DesBrisay, 925 West Georgia St., Vancouver, B. C., Governor.

Detroit, Dec. 3. Dr. H. Marvin Pollard, 1313 East Ann St., Ann Arbor, Mich., Governor.

Hot Springs, Ark., Dec. 3. Dr. A. A. Blair, 100 S. 14th St., Ft. Smith, Ark., Governor.

Winston-Salem, N. C., Dec. 8. Dr. Elbert Persons, Duke Hospital, Durham, N. C., Governor.

Southern Surgical Association, The Homestead, Hot Springs, Va., Dec. 6-8. Dr. George G. Finney, 2947 St. Paul St., Baltimore 18, Secretary.

Southern Thoracic Surgical Association, The Greenbrier, White Sulphur Springs, W. Va., Dec. 2-5. Dr. Hawley H. Seiler, 442 West Lafayette St., Tampa 6, Fla.

Western Surgical Association, Olympic Hotel, Seattle, Dec. 1-3. Dr. John T. Reynolds, 612 N. Michigan Blvd., Chicago 11, Secretary.

FOREIGN AND INTERNATIONAL

All India Medical Conference, Jaipur, India, Dec. 26-28. Dr. B. N. Consul, Association Bldg., S.M.S. Hospital Premises, Jaipur, India, Organizing Secretary.

Conference of International Union for Health Education of the Public, Rome, Italy, Apr. 27-May 5, 1956. Mr. Lucien Viborel, 92 rue St. Denis, Paris 1^{er}, France, Secretary-General.

Congress of International Association of Limnology, Helsinki, Finland, July 26-Aug. 7, 1956. For information address: Dr. H. Luther, Snellmansgatan 16 C 36, Helsinki, Finland.

Congress of International Association of Logopedics and Phoniatrics, Barcelona, Spain, Sept. 3-7, 1956. Dr. J. Perello, Provenza 319, Barcelona 9, Spain, Secretary-General.

Congress of International Society of Hematology, Hotel Statler, Boston, Mass., U.S.A., Sept. 3-8, 1956. Dr. W. C. Moloney, 39 Bay State Road, Boston, Mass., U.S.A., Secretary.

Congress of International Society for Research on Anesthesia, Miami Beach, Fla., U.S.A., Mar. 12-15, 1956. For information write: Dr. R. J. Whitacre, 13951 Terrace Road, Cleveland 12, Ohio, U. S. A.

Congress of Latin Society of Ophthalmology, Madrid, Spain, April 24-28, 1956. For information address: Dr. Costi, Montalban 3, Madrid, Spain.

European Congress of Allergology, Florence, Italy, Sept. 12-15, 1956. Prof. Umberto Serafini, Instituto de Patologia Medica, Viale Morgagni, Florence, Italy, Secretary-General.

European Congress of Cardiology, Stockholm, *Sweden*, *Sept.* 10-14, 1956. Dr. Karl Erik Grewin, Sodersjukhuset, Stockholm, Sweden, General Secretary.

European Symposium on Vitamin B_{12}, Hamburg, Germany, May 1956. For information write: Doz. Dr. H. Bauer, Nervenklinik. Hamburg-Eppendorf, Germany.

Inter-American Congress of Cardiology, Havana. Cuba, Nov. 4-10, 1956. For information address: Dr. Ramon Aixala, Apartado 2108, Havana, Cuba.

International Academy of Pathology, Cincinnati, Ohio, U. S. A., April 24-25, 1956. Dr. F. K. Mostofi, Armed Forces Institute of Pathology, Washington 25, D. C., U. S. A., Secretary.

International Congress Against Alcoholism, Istanbul, Turkey, Sept. 10-15, 1956. For information address: International contre l'Alcoolisme, Case Gare 49, Lausanne, Switzerland.

International Congress of Anthropological and Ethnological Sciences, Philadelphia, Pa., U. S. A., Sept. 2-9, 1956. Dr. William N. Fenton, National Research Council, Division of Anthropology and Psychology, 2101 Constitution Avenue, Washington 25, D. C., U. S. A., Secretary-General.

International Congress of Blood Transfusion, Boston, Mass., U. S. A., Aug. 29-Sept. 2, 1956. Dr. J. Julliard, 57, Boulevard L'Auteuil, Boulonge-sur-Seine, France, Secretary General.

International Congress on Diseases of the Chest, Cologne, Germany, Aug. 19-23, 1956. Mr. Murray Kornfeld, 112 East Chestnut St., Chicago 11, Illinois, U. S. A., Executive Director.

International Congress of Entomology, Montreal, Canada, Aug. 17-25, 1956. Mr. J. A. Downes, Science Service Bldg., Carling Ave., Ottawa, Ont., Canada, Secretary.

International Congress of Gastroenterology, London, England, July 18-21, 1956. Mr. Hermon Taylor, London Hospital, White Chapel, London E.1, England, Honorable Secretary.

International Congress for the History of Science, Florence and Milan, Italy, Sept. 3-10, 1956. Dr. M. L. Bonelli, Instituto di Ottica, Arcetri, Florence, Italy, Secretary-General.

International Congress of Human Genetics, Copenhagen, Denmark, Aug. 1-6, 1956. For information address: The University Institute for Human Genetics, Tagensvej 14, Copenhagen N, Denmark.

International Congress of Hydatid Disease, Athens, Greece, Sept. 14-18, 1956. Prof. B. Kourias, Croix-Rouge Hellenique, 1 rue Mackenzie King, Athens, Greece, Secretary-General.

International Congress of Internal Medicine, Madrid, Spain, Sept. 19-23, 1956. Dr. J. C. De Oya and Dr. J. Gimena, Hostaleza No. 90, Madrid, Spain, Secretaries.

International Congress of International College of Surgeons, Palmer House, Chicago, Illinois, U. S. A., Sept. 9-13, 1956. Dr Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U. S. A., Secretary-General.

International Congress of Neo-Hippocratic Medicine, Montecatini, Terme, Italy, May 20-22, 1956. Dr. Valente, 41 Avenue Verdi, Montecatini Terme, Italy, Secretary-General.

International Congress of Paediatrics, Copenhagen, Denmark, July 22-27, 1956. Professor P. Plum, Rigshospitalet, Copenhagen, Denmark, President.

International Congress of Physical Medicine, Copenhagen, Denmark, August 20-24, 1956. Dr. B. Strandberg, Kobenhavns amts sygehus i Gentofte, Dept. of Rheumatology and Physical Medicine, Hellerup, Denmark, Honorable Secretary.

International Congress of Physiopathology of Animal Reproduction and Artificial Insemination, Cambridge, England, June 25-29, 1956. For information address: Dr. Joseph Edwards, Production Division, Milk Marketing Board, Thames Ditton, Surrey, England.

International Congress of Radiology, Mexico, D. F., Mexico, July 22-28, 1956. Dr. Jose Noriega, Tepic 126 (2e piso), Mexico, D. F. 7, Mexico, Secretary General.

International Congress of World Confederation for Physical Therapy, Hotel Statler, New York, New York, U. S. A., June 17-23, 1956. For information address: Miss Mildred Elson, American Physical Therapy Association, 1790 Broadway, New York 19, New York, U. S. A.

International Genetics Symposium, Tokyo and Kyoto, Japan, Sept 6-12, 1956. For information address: Secretary, International Genetics Symposium, Science Council of Japan, Ueno Park, Tokyo, Japan.

International Physiological Congress, Brussels, Belgium, July 29-Aug. 5, 1956. For information address: Prof. J. Reuse, Faculte de Medicine et de Pharmacie, 115 Boulevard de Waterloo, Brussels, Belgium.

International Professional Union of Gynecologists and Obstetricians, Madrid, Spain, Sept. 28-29, 1956. Dr. Jacques Courtois, 1 rue Racine, St-Germain-en-Laye (S and O), France, Permanent International Secretary-General.

Latin American Congress of Pathology, Mexico, D. F., Mexico, Dec. 11-17. For information address: Laboratorio de Anatomia Patologica, Instituto N. de Cardiologia, Avenida Cuauhtemoc 300, Mexico 7, D. F., Mexico.

Latin American Congress of Physical Medicine, San Juan, Puerto Rico and Curacao, N.W.I., Jan. 29-Feb. 8, 1956. Dr. Cassius Lopez de Victoria, 176 East 71st St., New York 21, New York, U. S. A., Executive Director.

Medical Women's International Association, Extraordinary General Assembly, Burgenstock, Nidwalden, Switzerland, Sept. 21-23, 1956. Dr. Janet Aitken, 30a Acacia Road, London N.W. 1, England, Secretary.

North Queensland Medical Conference, Cairns, North Queensland, Australia, June 25-30, 1956. Dr. W. R. Horsfall, P.O Box 672, Cairns, N.Q., Australia, Secretary.

Pan-American Academy of General Practice, San Juan, Puerto Rico and Curacao, N.W.I., Jan. 29-Feb. 8, 1956. Dr. Arturo Martinez, 54 East 72d St., New York 21, New York, U. S. A., Secretary.

Pan American Congress of Gastroenterology, Havana, Cuba, Jan. 20-27, 1956. For information address: Dr. Norberto M. Stapler, 1267 J. E. Uriburu, Buenos Aires, Argentine, S. A.

Pan American Congress of Ophthalmology, Santiago, Chile, S. A., Jan. 9-14. 1956. Dr. Rene Contardo, Huerfanos 930, Of. 74, Santiago, Chile, Secretary General.

Pan American Congress of Otorhinolaryngology and Bronchoesophagology, San Juan, Puerto Rico, March 8-12, 1956. Dr. C. E. Munoz MacCormick, Apartado 9111, Santurce, Puerto Rico, Secretary General.

Pan American Medical Women's Alliance, Santiago, Chile, March 6-13, 1956. For information address: Dr. Eva Cutright, 458 Beall Ave., Wooster, Ohio, U. S. A.

World Congress on Fertility and Sterility, Naples, Italy, May 18-26, 1956. For information address: Prof. G. Tesauro, S. Andrea della Dame, 19, Naples, Italy.

World Medical Association, Havana, Cuba, Oct. 9-15, 1956. Dr. Louis H. Bauer, 345 East 46th St., New York 17, New York, U. S. A., Secretary-General.

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: Various Centers. April 24-25 (Part II); June 19-20 (Parts I and II); September 4-5 (Part I). Candidates may file applications at any time but they must be received at least six weeks before the date of the examination for which application is made. New candidates should apply by formal registration; registered candidates may notify the board, indicating desired location, date and candidate number. Ex. Sec., Dr. John P. Hubbard, 133 South 36th St., Philadelphia 4.

BOARDS OF MEDICAL EXAMINERS

Alabama: *Examination* Montgomery, June 19-21. Sec., Dr. D. G. Gill, State Office Bldg., Montgomery.

Arizona:* *Examination.* Phoenix, Jan. 18-19. *Reciprocity.* Phoenix, Jan. 21. Sec., Dr. M. R. Richter, 411 Security Bldg., Phoenix.

Colorado:* *Examination.* Denver, Dec. 6-7. Final date for filing application is Nov. 4. Exec. Sec., Mrs. Beulah H. Hudgens, 831 Republic Bldg., Denver 2.

Delaware: *Examination.* Dover, Jan. 10-12. *Reciprocity.* Dover, Jan. 19. Sec., Dr. Joseph S. McDaniel, Dover.

District of Columbia:* *Reciprocity.* Washington, Dec. 12. Deputy Director, Mr. Paul Foley, 1740 Massachusetts Ave. N.W., Washington 6.

Florida:* *Examination.* Miami Beach, Nov. 20-21. Sec., Dr. Homer L. Pearson, 901 N. W. 17th St., Miami.

Georgia: *Examination and Reciprocity.* Atlanta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

Idaho: *Examination and Reciprocity.* Boise, Jan. 9-11. Exec. Sec., Mr. Armand L. Bird, 364 Sonna Bldg., Boise.

Illinois: *Examination and Reciprocity.* Chicago, Jan. 24-26. Supt. of Regis., Mr. Frederic B. Selcke, Capitol Building, Springfield.

Indiana: *Examination.* Indianapolis, June. Exec. Sec., Miss Ruth V. Kirk, 538 K. of P. Bldg., Indianapolis.

Iowa:* *Examination.* Des Moines, Dec. 5-7. Ex. Sec., Mr. Ronald V. Saf, State Office Bldg., Des Moines.

Kansas: *Examination and Endorsement.* Topeka, Dec. 7-8. Sec., Dr. Lyle F. Schmaus, New Brotherhood Bldg., Kansas City.

Kentucky: *Examination.* Louisville, Dec. 5-7. Asst. Sec., Mr. R. F. Dixon, 620 S. 3rd St., Louisville.

Louisiana: *Examination and Reciprocity.* New Orleans, Dec. 1-3. Sec., Dr. Edwin H. Lawson, 930 Hibernia Bank Bldg., New Orleans 12.

Maryland: *Examination.* Baltimore, Dec. 13-16. Exec. Sec., Miss Hannah A. McCarthy, 1215 Cathedral St., Baltimore 1.

Michigan:* *Examination.* Ann Arbor and Detroit, June 13-15 (Tentative). Sec., Dr. E. C. Swanson, 118 Stevens T. Mason Bldg., Lansing.

Minnesota:* *Examination.* Minneapolis, Jan. 18-20. Sec., Dr. F. H. Magney, 230 Lowry Medical Arts Bldg., St. Paul 2.

Mississippi: *Reciprocity.* Jackson, December. Asst. Sec., Dr. R. N. Whitfield, State Board of Health, Jackson.

Montana:* *Examination and Reciprocity.* Helena, April 3-4. Sec., Dr. S. A. Cooney, 7 West 6th Ave., Helena.

Nebraska:* *Examination.* Omaha, June 18-20. Director, Bureau of Examining Boards, Mr. Husted K. Watson, 1009 State Capitol Bldg., Lincoln.

NEVADA:* *Examination and Reciprocity.* Reno, Jan. 3. Sec., Dr. G. H. Ross, 112 N. Curry St., Carson City.

NEW MEXICO:* *Examination and Reciprocity.* Santa Fe, Nov. 21-22. Sec., Dr. R. C. Derbyshire, 227 E. Palace Ave., Santa Fe.

NEW HAMPSHIRE: *Examination and Endorsement.* Concord, March 14. Sec., Dr. John S. Wheeler, 107 State House, Concord.

NEW YORK: *Examination.* Albany, Buffalo, Syracuse and New York, Feb. 7-10. Sec., Dr. Stiles D. Ezell, 23 S. Pearl St., Albany.

NORTH DAKOTA: *Examination.* Grand Forks, Jan. 4-6. *Reciprocity.* Grand Forks, Jan. 7. Sec., Dr. C. J. Glaspel, Box 228, Grafton.

OHIO: *Examination.* Columbus, Dec. 15-17. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA:* *Examination.* Oklahoma City, June 5-6. Sec., Dr. E. F. Lester, 813 Braniff Bldg., Oklahoma City.

OREGON:* *Examination.* Portland, Jan. 12-14. Exec. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland.

PENNSYLVANIA: *Examination.* Philadelphia, January. Acting Sec., Miss Marguerite G. Steiner, Box 911, Harrisburg.

RHODE ISLAND:* *Examination.* Providence, Jan. 5-6. Admin. of Professional Education, Mr. Thomas B. Casey, Room 366, State Office Bldg., Providence 2.

SOUTH DAKOTA:* *Examination.* Sioux Falls, Jan. 17-18. Exec. Sec , Mr. John C. Foster, 300 First National Bank Bldg., Sioux Falls.

TENNESSEE:* *Examination.* Memphis, Dec. 21-22. Sec., Dr. H. W. Qualls, 1635 Exchange Bldg., Memphis.

TEXAS:* *Examination and Reciprocity.* Galveston, Dec. 1-3. Sec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Fort Worth 2.

VIRGINIA: *Examination.* Richmond, Dec. 7-9. *Reciprocity.* Richmond, Dec. 6. Final date for filing application is Nov. 21. Address the Secretary, 631 First St. S.W., Roanoke.

WEST VIRGINIA: *Examination and Reciprocity.* Charleston, Jan. 9-11. Sec., Dr. Newman H. Dyer, State Office Bldg., No. 3, Charleston 5.

WISCONSIN:* *Reciprocity and Examination.* Madison, Jan. 10-12; *Reciprocity,* Madison, Spring; *Reciprocity and Examination.* Milwaukee, July 10-12. Sec., Dr. Thomas W. Tormey, Jr., 1140 State Office Bldg., Madison.

WYOMING: *Examination and Endorsement.* Cheyenne, Feb. 6. Sec., Dr. Franklin D. Yoder, State Office Bldg., Cheyenne.

ALASKA:* On application. Sec., Dr. W. M. Whitehead, 172 South Franklin St., Juneau.

GUAM. The Commission on Licensure will meet whenever a candidate appears or submits his credentials. Sec., Dr. John E. Kennedy, Agana.

HAWAII: *Examination.* Honolulu, Jan. 9-12. Sec., Dr. I. L. Tilden, 1020 Kapiolani, St., Honolulu.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ARIZONA: *Examination and Reciprocity.* Tucson, Dec. 20. Sec., Dr. H. D. Rhodes, University of Arizona, Tucson.

ARKANSAS: *Examination.* Little Rock, May 4-5. Sec., Mr. S. C. Dellinger, Zoology Department, University of Arkansas, Fayetteville.

COLORADO: *Examination.* Denver, Dec. 7-8. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver 18.

DISTRICT OF COLUMBIA: *Examination.* Washington, April 23-24. Deputy Director, Mr. Paul Foley, 1740 Massachusetts Ave. N.W., Washington 6.

MICHIGAN: *Examination.* Detroit and Ann Arbor, Feb. 10-11. Sec., Mrs. Anne Baker, 410 W. Michigan Ave., Lansing 15.

MINNESOTA: *Examination.* Minneapolis, Jan. 3-4. Sec., Dr. Raymond N. Bieter, 126 Millard Hall, University of Minnesota, Minneapolis.

NEBRASKA: *Examination.* Omaha, Jan. 10-11. Sec., Mr. Husted K. Watson, Room 1009, State Capitol Bldg., Lincoln 9.

NEVADA: *Examination.* Reno, Jan. 3. Sec., Dr. Donald G. Cooney, Box 9005, University Station, Reno.

NEW MEXICO: *Examination.* Santa Fe, Jan. 15. Sec., Mrs. Marguerite Cantrell, Box 1522, Santa Fe.

OKLAHOMA: *Examination.* Oklahoma City, Mar. 30-31. Sec., Dr. E. F. Lester, 813 Braniff Bldg., Oklahoma City.

OREGON: *Examination.* Portland, Dec. 3; March 3; June 2, Sept. 8 and Dec. 1. Dr. Earl M. Pallett, Sec., State Board of Higher Education, Eugene.

SOUTH DAKOTA: *Examination.* Vermillion, Dec. 2-3. Sec., Dr. Gregg M. Evans, 310 E. 15th St., Yankton.

TEXAS: *Examination.* Galveston, Dallas, and such other locations as are warranted, April. Sec., Bro. Raphael Wilson, 407 Perry-Brooks Bldg., Austin.

WISCONSIN: Milwaukee, Dec. 3. Final date for filing application is Nov. 25. Madison, Apr. 7. Final date for filing application is Mar. 30. Sec., Dr. W. H. Barber, 621 Ransom St., Ripon.

ALASKA: On application. Juneau or other towns in Territory as decided by Board. *Reciprocity.* On application. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

---

*Basic Science Certificate required.

MAGAZINE–TELEVISION REPORT

The following list of current medical articles in mass-circulation magazines and forthcoming network television programs on medical subjects is published each week only for the information of readers of THE JOURNAL. *Unless specifically stated, the American Medical Association neither approves nor disapproves of the articles and programs reported.*

TELEVISION

Monday, Nov. 28

NBC-TV, 11 a. m. to 12 noon EST. "Medical and Health News with Howard Whitman," a segment of the "Home" program.

NBC-TV, 9 p. m. EST. "Medic" presents "Glass of Fear," the story of a cartoonist who becomes a hypochondriac as a result of a mental conflict.

ABC-TV, 9:30 p. m. EST. "Medical Horizons" will originate its program from the A. M. A.'s Clinical Session in Boston. Doctors at Boston's Children's Medical Center will report on the institution's adolescent clinic.

MAGAZINES

Life, Nov. 5, 1955

"Einstein Memorial"

News and picture story reporting on dedication of the Albert Einstein College of Medicine of Yeshiva University, New York.

Saturday Evening Post, Nov. 12, 1955

"The Doctor Who Sees Through You," by Greer Williams

A profile of Harvard Medical School's Dr. Merrill C. Sosman, described by "medical admirers" as "the greatest X-ray diagnostician in America and, unquestionably, one of the greatest clinical teachers in all medicine." The article also describes the work of a radiologist.

"Operation Brotherhood," by Derrell Berrigan

In Vietnam, Indochina, a group of Filipino volunteer doctors, nurses, and dentists have banded together to provide medical assistance and treatment for residents of the war-ravaged area.

Parade, Nov. 20, 1955

"Medicine's New Weapons Against Heart-Disease," by Robert P. Goldman

What most people refer to as "heart disease" actually includes more than two dozen separate illnesses. Two kinds of heart diseases, rheumatic and congenital, appear to be on the run. Two others, atherosclerosis and high blood pressure, are better treated than ever. The author tells "how we're fighting the No. 1 threat to our nation's health."

Pageant, December, 1955

"An Accurate 60-Minute Test for Pregnancy," by Turner Hodges

The writer reports that in the so-called dermal test, an injection of colostrum will cause a bump to rise on a woman's skin. If the woman is pregnant, the bump will soon disappear. If she is not pregnant, the bump will remain for several hours. According to the article, a drug firm in Los Angeles solved many of the early problems in administering the test by devising a tiny plastic device called the micro-dispenser, which contains the colostrum and a built-in needle.

"Are You Driving Your Alcoholic to Drink?" by Shirley Kessler

Al-Anon Family Groups is an organization incorporated this year as a separate entity from AA to provide guidance for families of alcoholics. It is an "experience-exchange oasis to give husbands and wives a chance for releasing tensions in talks with others who understand."

DEATHS

Hess, Julius Hays ⊕ Chicago, since 1944 professor of pediatrics, emeritus, University of Illinois College of Medicine, died of a heart attack while visiting in Los Angeles Nov. 2, aged 79. Dr. Hess was born in Ottawa, Ill., Jan. 26, 1876, and received his M.D. degree at Northwestern University Medical School in Chicago in 1899. He interned at Alexian Brothers Hospital, Chicago, and continued postgraduate work at Johns Hopkins Hospital in Baltimore and at European clinics. From 1908 to 1913 he was an instructor in pediatrics at his alma mater and in 1913 joined the faculty of the University of Illinois College of Medicine as an associate professor of pediatrics, becoming professor and head of the department of pediatrics in 1916, and serving until 1944, when he reached retirement age. Dr. Hess was a specialist certified by the American Board of Pediatrics, a fellow of the American College of Physicians, and a member of the American Pediatric Society and the American Academy of Pediatrics, which in 1952 presented him with the Borden Award "for his many productive contributions to the care and management of the prematurely born infant." In 1934-1935 Dr. Hess was president of the Chicago Medical Society and later was vice-president of the Institute of Medicine of Chicago. In 1951 he was a member of the House of Delegates of the American Medical Association, serving at one time as chairman of its Section on Pediatrics. During World War I he was a major in the Medical Corps of the U. S. Army and was commanding officer of General Hospital no. 25. He served as a member of the advisory board, Children's Bureau, Department of Labor, Washington, D. C., was a member of the Illinois Board of Welfare Commissioners, a medical member of the advisory board for Prevention of Juvenile Delinquency, a member of the medical advisory board of the Illinois Public Aid Commission, the Cook County and Chicago Welfare Administration, and the Illinois Crippled Children's Commission. For many years he was on the staff of the Englewood Hospital and consulting pediatrician and member of the executive board of the Municipal Contagious Disease Hospital. Dr. Hess was chairman of the medical committee of the Jewish Children's Bureau. He served as attending pediatrician at the Illinois Research and Educational Hospital and the Cook County Hospital, and was senior attending pediatrician at the Michael Reese Hospital, where he was head of the department, and was instrumental in the establishment of the first premature station at the Sarah Morris Hospital, a unit of Michael Reese. He devised a small hand ambulance bag to facilitate transportation of premature infants, an electrically heated water jacketed bed, and an oxygen therapy unit for premature infants. He was a founder and chairman of the medical advisory committee of the Cook County chapter, National Foundation for Infantile Paralysis. In 1955 he was one of six Chicagoans who was granted a Golden Age Hall of Fame citation for his contribution to pediatrics after reaching the age of 65. Dr. Hess contributed chapters to systems in pediatrics and he was the author of "Feeding and Nutritional Disorders of Infancy and Childhood," "Premature and Congenitally Diseased Infants," and "The Physical and Mental Development of Prematurely Born Children," and joint author with Dr. Evelyn C. Lundeen of "The Premature Infant."

Vernon, James William ⊕ Morganton, N. C.; born in Person County July 21, 1886; Jefferson Medical College of Philadelphia, 1909; past-president of the Medical Society of the State of North Carolina, state board of medical examiners, Burke County Medical Society, and the North Carolina Neuropsychiatric Society; member of the Southern Psychiatric Association, American Psychiatric Association, American Ornithologists Union, American Association for the Advancement of Science, and the North Carolina Academy of Science; fellow of the American College of Physicians; mayor of Morganton from 1933 to 1937; served in France during World War I; since October, 1940, examining physician to Burke County Local Board no. 1; specialist certified by the American Board of Psychiatry and Neurology; consulting psychiatrist at the Morganton State Hospital and psychiatrist at Grace Hospital; since 1921 superintendent of the Broadoaks Sanatorium, where from 1910 to 1917 he was assistant physician; a director of the First National Bank; company surgeon to the Southern Railway; died July 16, aged 68, of cerebrovascular accident.

Fitz, Frederick William ⊕ Chicago; born in Lomax, Ill., Sept. 9, 1902; Northwestern University Medical School, Chicago, 1934; associate professor of medicine at his alma mater, where he was chief of the heart and circulation clinic; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; from 1939 to 1941 first medical counselor of the Chicago *Tribune;* served in the European theater during World War II; later joined the Army's civilian consultant system and made a tour of American hospitals in the Pacific in 1948-1949; medical director of the A. B. Dick Company and the Jewel Tea Company; area consultant, Veterans Administration Hospital; member and past-president of the staff of the Passavant Memorial Hospital, where he died Oct. 8, aged 53, of coronary artery disease.

Halsey, Robert Hurtin, New York City; born in Astoria, Long Island, June 15, 1873; Columbia University College of Physicians and Surgeons, New York City, 1900; at one time professor of medicine at the New York Post-Graduate Medical School and Hospital, Columbia University; a founder of the New York Heart Association; a founder, the first secretary, and in 1932 president of the American Heart Association, which gave him one of its first gold heart awards for outstanding contributions in the fight against heart disease; member of the Harvey society, the Society for Experimental Biology, and other scientific and medical groups; an associate member of the American Medical Association; served during World War I; consultant at Goldwater Memorial Hospital; died in Stanstead, Quebec, Canada, Sept. 15, aged 82.

Boyers, Luther Musson ⊕ Berkeley, Calif.; born in Decatur, Ind., March 29, 1888; Leland Stanford Junior University School of Medicine, San Francisco, 1916; during World War I served as a contract surgeon for the U. S. Army at the University of California; from 1919 to 1923 assistant physician and surgeon for men at the University of California Infirmary, where he served as research associate and consultant in parasitology; life member of the American Public Health Association; for 30 years member of the cancer research group and tumor board at his alma mater; active at the Ernest V. Cowell Memorial Hospital; died in the Stanford University Hospital Sept. 19, aged 67, of mesenteric thrombosis.

Dooley, Emmett Alfred ⊕ New York City; born in Windsor Mills, Quebec, Canada, Aug. 22, 1897; Syracuse University College of Medicine, 1923; associate clinical professor of surgery at the Post-Graduate Medical School of the New York University-Bellevue Medical Center; fellow of the American College of Surgeons and the New York Academy of Medicine; governor of the American Academy of Compensation Medicine; president of the New York Catholic Physicians Guild; director of traumatic and orthopedic surgery at Columbus Hospital; consultant at the Morrisania City Hospital; died Sept. 24, aged 58, of coronary heart disease.

Williams, John Thomas ⊕ Boston; Harvard Medical School, Boston, 1904; served as assistant professor of gynecology at his alma mater; in 1936 president of the Obstetrical Society of Boston; fellow of the American College of Surgeons; chief of obstetrics at the Whidden Memorial Hospital in Everett, the Chelsea (Mass.) Memorial Hospital, and the Winthrop (Mass.) Community Hospital; on the staff of the Boston City Hospital for many years, serving as surgeon-in-chief for obstetrics and gynecology from 1935 to 1943; died Sept. 18, aged 73, of myocardial infarction.

⊕ Indicates Member of the American Medical Association.

Allen, Burton Watson ⊕ Dallas, Texas; Baylor University College of Medicine, 1931; member of the American Academy of General Practice; died Sept. 19, aged 61, of bronchopneumonia.

Allen, Millard Fillmore ⊕ New Haven, Conn.; Medico-Chirurgical College of Philadelphia, 1895; died Sept. 5, aged 100, of arteriosclerotic heart disease.

Arling, Philip Arthur ⊕ McMinnville, Ore.; University of Minnesota Medical School, Minneapolis, 1941; served during World War II; died Sept. 29, aged 46, in an automobile accident.

Arnoldussen, Chris Philip ⊕ Fremont, Wis.; Marquette University School of Medicine, Milwaukee, 1937; died in New London (Wis.) Community Hospital July 15, aged 44, of a skull fracture received in an automobile accident.

Bak, Edward William ⊕ Los Angeles; Rush Medical College, Chicago, 1898; member of the staff of the Cedars of Lebanon Hospital, where he died Sept. 17, aged 80, of heart disease.

Battles, Charles Edwin, Cleveland; Cleveland Homeopathic Medical College, 1903; one of the founders of Grace Hospital, where he was a member of the initial staff; died Sept. 25, aged 78, of a heart attack.

Beatty, Mary Teresa Veronica Moore, Boston; Tufts College Medical School, Boston, 1913; member of the Massachusetts Medical Society; physician in Boston schools for many years; at one time a trustee of the city public library; an advisory trustee of the nursing school at Holy Ghost Hospital in Cambridge, Mass.; assistant superintendent, sanatorium division, Boston City Hospital; on the courtesy staff, St. Elizabeth's Hospital, where she died Sept. 4, aged 64, of arteriosclerotic heart disease with congestive failure and cancer of the breast.

Blaufuss, Armin Louis ⊕ Geneva, Ill.; University of Illinois College of Medicine, Chicago, 1936; on the staffs of the Delnor Hospital in St. Charles and the Community Hospital, where he died Oct. 4, aged 52, of a heart attack.

Botsford, Charles Porter ⊕ Hartford, Conn.; Yale University School of Medicine, New Haven, 1894; for many years city health officer; member of the American Public Health Association; died Sept. 6, aged 84, of coronary insufficiency.

Bridgman, Thomas Francis ⊕ New York City; University of Pennsylvania Department of Medicine, Philadelphia, 1903; an associate member of the American Medical Association; died Sept. 17, aged 77.

Brooks, Robert Hartley ⊕ Scarsdale, N. Y.; Harvard Medical School, Boston, 1905; member of the New Hampshire Medical Society; for many years practiced in Claremont, N. H.; died in White Plains (N. Y.) Hospital Aug. 27, aged 77, of acute myocardial infarction.

Burke, John Bennett ⊕ Troy, N. Y.; Albany (N. Y.) Medical College, 1910; on the staff of St. Mary's Hospital; died Sept. 8, aged 69, of coronary thrombosis.

Bush, James Allen, Salt Lake City; University of Rochester (N. Y.) School of Medicine and Dentistry, 1947; instructor in pediatrics at the University of Utah College of Medicine; certified by the National Board of Medical Examiners; specialist certified by the American Board of Pediatrics; interned at the Strong Memorial Hospital in Rochester, N. Y.; served a residency at the Salt Lake County General Hospital, Presbyterian Hospital, New York City, and Trudeau (N. Y.) Sanatorium; from 1950 to 1952 an officer in the Medical Corps of the U. S. Naval Reserve; killed in an airplane crash Oct. 6, aged 31.

Carter, Robert Lee ⊕ Church Hill, Tenn.; Lincoln Memorial University Medical Department, Knoxville, 1913; died in Johnson City July 21, aged 78, of coronary thrombosis.

Ceytlin, Benjamin Herman, New York City; Uniwersytet Jozefa Pilsudskiego, Warszawa, Poland, 1927; member of the Medical Society of the State of New York; served on the staff of the Manhattan State Hospital; assistant attending physician at the New York University-Bellevue Medical Center; died in the Flower and Fifth Avenue Hospital Sept. 19, aged 54, of metastatic melanoma.

Chauss, Jay Manuel ⊕ Toledo, Ohio; University of Minnesota Medical School, Minneapolis, 1948; specialist certified by the American Board of Radiology; member of the Medical Society of the State of New York; on the staff of the Maumee Valley Hospital; died Sept. 16, aged 30.

Chesson, Andrew Long ⊕ Raleigh, N. C.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1936; served during World War II; drowned in Chesapeake Bay, North Beach, Md., Aug. 12, aged 41.

Colt, James Dennison ⊕ Manhattan, Kan.; University Medical College of Kansas City, 1900; also a graduate in pharmacy; member of the House of Delegates of the American Medical Association from 1933 to 1935; served as vice-president and director of the Union National Bank; on the honorary staff of St. Mary Hospital, where he died Aug. 30, aged 88, of cerebral hemorrhage.

Corwin, Charles T. ⊕ Chicago; Northwestern University Medical School, Chicago, 1906; died in the Evangelical Hospital Sept. 24, aged 79, of cerebral thrombosis.

Creekmur, Roger Lee ⊕ Richmond, Va.; Medical College of Virginia, Richmond, 1921; for many years physician and surgeon for the city fire bureau; served on the staffs of the Stuart Circle Hospital, Retreat for the Sick, and Medical College of Virginia Hospital; died Sept. 3, aged 59, of a heart attack.

Crisp, Sellers Mark ⊕ Greenville, N. C.; University of Pennsylvania School of Medicine, Philadelphia, 1923; died July 20, aged 60, of coronary occlusion.

Culp, Earle E., Chicago; Missouri Medical College, St. Louis, 1896; died Sept. 10, aged 80, of coronary thrombosis.

Davidson, Herman Porter ⊕ Chicago; Johns Hopkins University School of Medicine, Baltimore, 1917; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology; on the staffs of the Chicago Memorial and Presbyterian hospitals; died in St. Luke's Hospital Oct. 9, aged 64, of hypertensive encephalopathy.

Dennison, John Chase ⊕ Bellevue, Iowa; State University of Iowa College of Medicine, Iowa City, 1889; also a graduate in pharmacy; past-president of the Jackson County Medical Society; for many years health officer; served during World War I; later a major in the Medical Reserve Corps; was president of the Bellevue Telephone Company and the Bellevue Clay Products Company; served on the city council and school board; died in the Bellevue Memorial Hospital Sept. 21, aged 89, of cerebral hemorrhage.

DuPuis, John Gordon ⊕ Miami, Fla.; Hospital College of Medicine, Louisville, Ky., 1898; died Sept. 17, aged 79, of coronary thrombosis.

Fitzsimmons, Elvin Lee ⊕ Evansville, Ind.; Indiana University School of Medicine, Indianapolis, 1935; specialist certified by the American Board of Proctology; past-president of the Vanderburgh County Medical Society; served during World War II; on the staffs of St. Mary's, Protestant Deaconess, and Welborn Memorial Baptist hospitals; died in the Barnes Hospital, St. Louis, Aug. 22, aged 44, of a brain tumor.

Freda, Leonard Aloysious ⊕ Dunmore, Pa.; Temple University School of Medicine, Philadelphia, 1920; served during World War I; formerly county coroner; fellow of the International College of Surgeons; active in athletics, and held the post of regional medical examiner for the Pennsylvania State Athletic Commission; for many years associated with the Scranton (Pa.) State Hospital, where he was superintendent from January, 1944, to August, 1954; died in the Mercy Hospital in Scranton July 15, aged 60.

Gallaher, David Mars ⊕ Appleton, Wis.; State University of Iowa College of Medicine, Iowa City, 1923; fellow of the American College of Surgeons; served during World War I; for many years member and at one time president of the library board; on the staff of St. Elizabeth Hospital, where he died July 30, aged 59, of virus pneumonia, hemiplegia, and Alzheimer's disease.

Gaster, Emil, Brooklyn, N. Y.; Medizinische Fakultät der Universität, Vienna, Austria, 1920; member of the Medical Society of the State of New York; died Sept. 8, aged 69, of coronary occlusion.

Graham-Rogers, Charles T., Ridgefield, Conn.; Baltimore University School of Medicine, 1899; served during World War I; for many years associated with the New York State Department of Labor; member of the Industrial Medical Association and the Medical Society of the State of New York; an associate member of the American Medical Association; died Sept. 24, aged 81.

Hathaway, Robert Joseph, Glendive, Mont.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1902; fellow of the American College of Surgeons; served during World War I; died July 15, aged 81, of probable coronary occlusion.

Held, Louis Arthur ⊕ Brooklyn, N. Y.; University and Bellevue Hospital Medical College, New York City, 1914; specialist certified by the American Board of Radiology; instructor in radiology at the New York Post Graduate Medical School from 1921 to 1923; attending radiologist at the Beth Moses Hospital from 1925 to 1948, when he became attending radiologist at the Maimonides Hospital; died Sept. 20, aged 62, of coronary occlusion.

Hill, Garland Withers, Cleveland, Tenn.; Atlanta College of Physicians and Surgeons, 1902; died in the Veterans Administration Hospital, Murfreesboro, July 7, aged 75, of a heart attack.

Hines, Brainard Evans ⊕ Charleston, W. Va.; Medical College of Virginia, Richmond, 1939; served during World War II; resident of the Mountain State Memorial Hospital; on the associate staff of St. Francis Hospital, where he died Oct. 2, aged 42, of pulmonary embolism and thrombophlebitis of the leg.

Hoge, Myrvin Eugene ⊕ Jackson, Ky.; Kentucky School of Medicine, Louisville, 1904; president of the Breathitt County Medical Society; member of the county board of health; trustee of the Lees Junior College; died Sept. 8, aged 75.

Holmes, Colin McLean ⊕ Springfield, Mass.; College of Physicians and Surgeons, Baltimore, 1915; died Aug. 10, aged 68, of adenocarcinoma of the sigmoid.

Horning, William H. ⊕ York, Pa.; Jefferson Medical College of Philadelphia, 1902; died July 27, aged 78, of cerebral accident.

Johnstone, Alexander Anthony ⊕ Keokuk, Iowa; State University of Iowa College of Medicine, Iowa City, 1928; fellow of the American College of Surgeons; served during World War II; on the staffs of the Graham Protestant and St. Joseph's hospitals; died Aug. 5, aged 57, of cancer.

Kasboum, William J., Houston, Texas; University of Buffalo School of Medicine, 1939; served during World War II; died in the Veterans Administration Hospital Sept. 2, aged 46, of carcinoma of the lung.

Keating, Charles V. ⊕ Beacon, N. Y.; Jefferson Medical College of Philadelphia, 1909; chairman of draft boards in the Beacon area during World Wars I and II; chief of staff at Highland Hospital; died Sept. 5, aged 70.

Kennedy, Robert Walden ⊕ Marshall, Mo.; University of Louisville (Ky.) School of Medicine, 1920; member of the American Academy of General Practice; on the staffs of the Georgia Brown Blosser Home for Crippled Children and the John Fitzgibbon Memorial Hospital; died Aug. 14, aged 62, of coronary occlusion.

Kenyon, Paul E., Vestal, N. Y.; Northwestern University Medical School, Chicago, 1896; served in France during World War I; died Sept. 17, aged 86.

Kerr, James Purdy, Pittsburgh; University of Maryland School of Medicine, Baltimore, 1888; an associate member of the American Medical Association; fellow of the American College of Surgeons; served as president of the city council; on the staff of St. Joseph's Hospital, where he died Sept. 9, aged 91, of arteriosclerotic heart disease.

Lucas, Peter Joseph, Amsterdam, N. Y.; Georgetown University School of Medicine, Washington, D. C., 1936; member of the Medical Society of the State of New York and the American Academy of General Practice; served as county coroner; on the staffs of the Amsterdam Hospital and St. Mary's Hospital, where he died Sept. 3, aged 45, of acute enteritis.

Lutton, Ethelbert Arnold ⊕ Chicago; Northwestern University Medical School, Chicago, 1918; member of the International College of Surgeons; on the staff of the South Shore Hospital; died in the Albert Merritt Billings Hospital Oct. 1, aged 62, of bronchogenic carcinoma with metastases.

Nelson, Frederick Lawrence ⊕ Ottumwa, Iowa; University and Bellevue Hospital Medical College, New York City, 1903; member of the International College of Surgeons; fellow of the American College of Surgeons; at one time on the faculty of Fordham University School of Medicine in New York City, where he was on the staff of the Lincoln Hospital; served during World War I; on the staffs of the Ottumwa and St. Joseph hospitals; consultant in surgical urology, Sunnyslope Sanatorium; instantly killed in an automobile accident Oct. 1, aged 77.

Schutz, Leopold, Chicago; Schlesische-Friedrich-Wilhelms-Universität Medizinische Fakultät, Breslau, Prussia, Germany, 1917; on the staff of the Southtown Hospital; died Sept. 6, aged 68, of heart disease.

Shaul, Frederick Gersham ⊕ Bloomfield, N. J.; Baltimore Medical College, 1901; an associate member of the American Medical Association; attending surgeon, emeritus, Newark (N. J.) Eye and Ear Infirmary; died Sept. 13, aged 77, of dissecting aneurysm of the aorta.

Shreck, John Addison ⊕ Redlands, Calif.; Rush Medical College, Chicago, 1891; an associate member of the American Medical Association; served during World War I; served as director of the Holton Power Company, First National Bank of Redlands, and the Chapman College in Los Angeles; for many years on the staff of the San Bernardino (Calif.) County Charity Hospital; died in the Redlands Community Hospital Sept. 3, aged 91.

Skwirsky, Joseph ⊕ Newark, N. J.; University and Bellevue Hospital Medical College, New York City, 1923; specialist certified by the American Board of Internal Medicine; member of the American Academy of Allergy, American Diabetes Association, and the Academy of Medicine of New Jersey; past-president of the New Jersey Diabetic Association; on the staff of the Beth Israel Hospital, where he served an internship, and where he died Sept. 15, aged 62, of myocardial infarction and diabetes mellitus.

Treister, Bert Allen, Cleveland Heights, Ohio; Western Reserve University School of Medicine, Cleveland, 1932; member of the Ohio State Medical Association, Cleveland Academy of Medicine, and the American Society of Physical Medicine; specialist certified by the American Board of Physical Medicine and Rehabilitation; served during World War II; on the staff of St. Vincent Charity Hospital in Cleveland; died in the University Hospital, Cleveland, Sept. 21, aged 46, of coronary thrombosis.

Turner, Edmond Daniel ⊕ Cave City, Ky.; Hospital College of Medicine, Louisville, 1906; twice president of the Barren County Medical Society; served during World War I; died in Glasgow Sept. 17, aged 81, of coronary thrombosis.

Walter, Will, Charlottesville, Va.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1892; specialist certified by the American Board of Ophthalmology; fellow of the American College of Surgeons; formerly practiced in Evanston, Ill., where he was on the staff of the Evanston Hospital; died in October, aged 88.

Whitehill, James Lorrin ⊕ Rochester, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1923; member of the House of Delegates of the American Medical Association from 1948 to 1954; past-president of the Medical Society of the State of Pennsylvania; served during World War I; chief of urology and president of the staffs of the Rochester General Hospital in Rochester, the Beaver Valley General Hospital at New Brighton, and the Providence Hospital in Beaver Falls; died Sept. 13, aged 58.

FOREIGN LETTERS

ENGLAND

Congress of Neuropathology.—At the second International Congress of Neuropathology, held in London in September, Dr. W. Blackwood of London described the findings in cortical biopsy specimens from 30 children with progressive dementia. In about half it was possible to indicate the pathological process, and in about a third to give a precise diagnosis. Drs. S. W. McMenemey and S. Nevin (London) described five further cases of a condition described by Nevin in 1954, the characteristic features of which were signs of focal cerebral disorder, such as clouding of consciousness, hemiplegia, mental disturbances, and myoclonic epilepsy occurring in later adult life. This was progressive and fatal within a few months. The electroencephalogram changes were characteristic; namely, periodically recurring, generalized, sharp, and slow wave complexes. The lesions were also distinctive—widespread cortical degeneration and glial reaction and a tendency to status spongiosus. In another discussion tentorial herniation was considered as a possible cause of temporal lobe epilepsy, which could be caused by ischemia of the compressed parts of the temporal lobe and subsequent scarring, the scar acting as an epileptic focus. Various vessels could also get compressed in the hernia. Dr. H. Pia (Gieseen, Germany) explained some vascular lesions of the occipital lobes on the basis of compression of vessels against the tentorial border. Dr. L. Wolman (Sheffield) analyzed the findings in 270 patients dying with a tentorial pressure cone: 12% showed hemorrhagic infarction of the occipital lobes and 5% infarction of the pituitary gland. Drs. J. Cavanagh and A. Meyer (London) described the results of changes seen in 40 resected temporal lobes. In 10 there were single focal lesions due to tumors, vascular malformation, or trauma; in most of the remainder, the lesions were diffuse or disseminated. The possibility of birth injury could not be excluded in some.

At a session on encephalitis, Dr. K. Kristiansen and his colleagues (Oslo, Norway) stated that acute hemorrhagic encephalitis was not necessarily fatal. The condition might be diagnosed in life by necrosis, cellular infiltration, hemorrhage, and demyelination in biopsy specimens. Of six patients studied, three survived, two with mental symptoms. Dr. M. Gozzano and his co-workers (Rome, Italy) described experiments to illustrate the efficacy of streptomycin in the treatment of experimental tuberculous encephalitis in guinea pigs. Treatment of inoculated animals with 30 mg. of streptomycin intramuscularly and brain tissue daily resulted in survival of the animals for six months. The controls all died within a week. It was not clear how the brain tissue acted. In the section on trauma, Dr. C. Benda (Waverley, Mass.) said that the effect of a single cranial injury was not restricted to the event, but was progressive, and led to interference with the circulation and nutrition of the brain. In infancy and childhood trauma might distort subsequent brain development. The late effects of trauma due to anoxia were described by Dr. A. Løken (Oslo, Norway). A youth, aged 18, survived four and a half years in a state of decerebration after a 10 minute arrest of heart and respiration. He lay most of the time with open eyes, although blind, and responded to strong auditory and painful stimuli with slow muscular movements. The parieto-occipital lobes and frontal gyri were severely damaged and the thalami were small and shrunken. Dr. S. Strich (Oxford) mentioned five patients with cranial injury, uncomplicated at the time, resulting in severe dementia until death 5 to 15 months later. Within three weeks of injury the patients were immobile with severe bilateral spastic hemiplegia, incontinence, and aphasia. Macroscopic changes in the brain were not pronounced, but microscopy showed widespread degeneration of white matter, loss of nerve fibers, and atrophy of the thalamus. Dr. R. Lindenberg and co-workers (Baltimore, Md.) described the pathological findings in 57 infants and children with cranial injuries due to blunt agents. The frequency of contusional foci was low in infants and the frequency rose with age. In the soft brains of infants small hemorrhagic tears were sometimes seen in the subcortical white matter. Death was usually due to severely increased intracranial pressure, which reached a critical level 15 to 20 minutes after the accident. Drs. D. Wollam and J. Millen (Cambridge) said that there were four possible sites for the blood-brain barrier—the capillary endothelium, the neuroglia, the ground substance, and the neuron itself. Dr. J. Gruner (Paris, France) said that radioactive isotope studies had shown that different substances passed through the blood-brain barrier at a variable speed; the all-or-none law did not apply. Water, oxygen, and anesthetics passed through so quickly that exact measurement was impossible; large molecules and toxins did not pass at all. The velocity and degree of passage varied with the region of the brain. They were greatest in the choroid plexuses, the posterior hypophysis and the epiphysis, and the hypoependymal organs. Dr. T. Broman (Göteborg, Sweden) showed that pial vessels behaved like cerebral capillaries in their impermeability to dyes, and he argued that part at least of the blood-brain barrier is in the capillary wall.

British Greenland Expedition.—A British expedition to northern Greenland was sponsored in 1952 by the Royal Society, the Medical Research Council, the Royal Geographical Society, and the armed services, the object being to study the geology, geophysics, and meterology of the region and the medical, physiological, and nutritional aspects of exploration in arctic regions. The explorers remained in North Greenland from 1952 to 1954. Lewis and Masterton report on the medical aspects of the expedition (*Lancet* **2**:549, 1955). All food was brought from Britain and consisted of canned meat, vegetables, fruit, and dried foods, such as cabbages, potatoes, carrots, and onions. It was found that many products such as whole potatoes and root vegetables, eggs, bacon, salted meat, cheese, and sausage would have kept perfectly in ice, which is present even in summer in northern Greenland. Bottled products were kept indoors owing to the danger of freezing and cracking.

Every member of the team carried a personal first-aid kit of 2 ampuls of morphine, 2 assorted elastoplast dressings, a field dressing such as is used in the armed services, a crepe bandage, sulfanilamide powder, and lanolin. Each unit was equipped with an extensive first-aid kit. A laboratory was fitted up at the base for physiological and medical research. Distilled water was obtained by heating ice in gasoline cans with a primus stove and condensing the steam outside the hut (temperature -39 F). Laboratory ware was made of polythene, not glass, wherever possible to prevent cracking. Among the problems investigated were sleep rhythm, which was expected to change under arctic conditions, diurnal temperature, physical efficiency as determined with the Harvard Pack Test, changes in weight, variations in the thickness of the fat layers of the body, and basal metabolic rate. Hematological studies included examination of red blood cell count, hematocrit, and hemoglobin to see if these were subject to seasonal changes. Eosinophil counts were also made as an assessment of stress, and specimens of blood for cholinesterase estimation were brought back. The caloric value of the diet of a group of men was carefully measured while they were at base and later during sledging expeditions. Specimens of total feces were brought back so that a complete analysis of the nutritional balance could be made. Blood and feces specimens were preserved in the ice in winter or in lingering snow drifts in summer. Fluid intake and output in summer and winter and at rest and exercise were compared.

The medical problems encountered were mainly cold injury, trauma, and unexpected illnesses. Snow blindness was not encountered and frostbite was rare, as precautions were taken against these. Traumatic conditions were few and included fractured ribs and ankles and a death from a fall of 300 ft. Over the two year period a long list of unexpected conditions was encountered. Among the more serious conditions were filariasis,

---

The items in these letters are contributed by regular correspondents in the various foreign countries.

malaria, asthma, cardiospasm, pruritus, amblyopia, persistent headache, and petit mal seizures. Some of these might have been avoided by better medical screening of personnel before departure. Nine had recurrent upper respiratory infections, but the common cold did not occur, except from association with relief parties who brought in the infection from outside. Among other conditions occurring were herpes zoster, lumbago, supraspinatus tendinitis, dermatophytosis of the feet, chronic blepharitis, sycosis barbae, dandruff, and ingrowing toenails. There were also some anxiety states. Dentistry presented one of the biggest problems. A foot-operated dental machine was taken along, and it was necessary to make 45 fillings. After some trial it was found that gutta-percha was the most satisfactory filling material. Seven dental extractions were done under local analgesia. It was difficult to be sure whether caries were accelerated by the Arctic conditions, but the impression gained was that it was not. Throughout the two years the two physicians in the team were in radio communication with medical advisers in Britain.

Nation's Health.—The annual report for England and Wales by the Ministry of Health (Report of the Ministry of Health for the Year Ended Dec. 31, 1954: Part I. 1. The National Health Service. 2. Welfare Foods and Drugs, Civil Defense, Cmd. 9566, London, Her Majesty's Stat. Off., 1955) shows that in 1954 the cost of the National Health Service was $1,324,400,000, or about $317 a head. Although general medical services—i. e., those rendered by general practitioners—were only a fifth of the cost of hospital and specialist services, if efficiently run these general medical services could save many patients from going to the hospital. There was a decrease of a million in the annual number of prescriptions issued, but, even so, each person in the country received an average of five prescriptions at a cost of $3 per person. In 1948 when the service was introduced the average cost of a prescription was 35 cents; now it is 62 cents. The number of free hearing aids issued from 1948 to the end of 1954 was 412,000.

The total number of full-time and part-time specialists in the service showed an increase of 1.6% over 1953. The numbers in certain specialties such as ophthalmology and venereology were static, while others, particularly in anesthesiology, showed an extensive rise. There were 6,899 general practitioners working alone in the service in the middle of last year, a decline of 248 since 1953, and 11,583 working in partnership. Most of the 1,500 assistants to general practitioners were 30 years of age or under, although 45 were over 65. There is a trend for more physicians to practice in partnership. In London 48% of patients are on lists of less than 2,500 patients, and 52% are on larger lists. In Norwich, a small city, only 20% are on the smaller lists and 80% on the larger, but in Bournemouth, a prosperous resort town, 84% are on lists under 2,500. The minister complains that there is too high a concentration of physicians in London and the South. In 1954 the waiting list for hospital admission decreased by 49,000 to 474,000, a reduction of about 10%. The number of hospital inpatients increased by 87,000 in 1954. There was an improved turnover in the use of beds due to shorter stay in the hospital. The number of beds allotted to general practitioners has been stationary for the last five years, and the number of private beds has dropped by 500. The average stay in the hospital depended on the specialty involved. The stay for ear, nose, and throat operations averaged 8.1 days; for gynecologic conditions 11.5 days; and for diseases of the chest 151.7 days. The work done in radiological departments for general practitioners rose by 5% and in pathology departments by 7.5%. In the last year 28 million dollars was allocated to the hospitals for capital development, bringing the total since the introduction of the National Health Service to $141,400,000. The mental health services are still overcrowded and overworked, but nothing has been done to build or extend hospitals or to remedy the shortage of nurses for the mentally ill. The number of reported cases of tuberculosis decreased, although there were better diagnostic facilities. Waiting lists for treatment of tuberculous patients were reduced from 10,986 in 1948 to 3,017 in 1954.

The number of physicians against whom it was necessary to take disciplinary action was low. Two were removed from the service, fines were imposed on 77, a warning letter was sent to 44, and some other action was taken against 9. Claims for negligence against hospitals reached a peak in 1954, $435,332 being paid out in damages. This sum does not include legal costs. There is no evidence that there has been any deterioration in the standard of service. The rising number of claims is due to the legal ruling that the hospital is responsible for the negligence of its servants, the provision of free legal aid, and the attitude of the litigious patient who aims to get all he can out of the state.

Rehabilitation of the Tuberculous Patient.—In its annual report (Cmd. 5522, London, Her Majesty's Stat. Off., 1955) the Ministry of Labour and National Service states that in Great Britain there are 835,473 disabled persons on the register. Of these, 4,000 have completed vocational training; industrial rehabilitation has provided for 10,000; and over 115,000 have been placed in ordinary employment. Tuberculous subjects number 67,108 on the disability register, and, of these, 55,812 have respiratory tuberculosis. The rehabilitation of these people is discussed by Dr. Kenneth Marsh (*M. Officer* 94:31, 1955). A part-time course in aero detail, fitting for tuberculous patients, was begun as an experiment in one of the London government training centers. This course gives patients with quiescent lesions an opportunity for four hours' work daily for 12 months. Awards were made to 233 tuberculous patients for professional training in the last year. For tuberculous patients who need work under sheltered conditions, Remploy Ltd. reserves seven factories, which employed 525 people in 1954. Five approved village or special workshops have been set up by voluntary bodies or local authorities. The Ministry of Labour grants financial assistance toward the maintenance and training of the patients from the stage when they can only work a few hours daily to the time when they can do a full day's work. Local education authorities will provide home instruction to groups of eight people at a time, but it is not easy to find eight people for such instruction in the same area at a given time. Homework is done sometimes by the tuberculous patient, but it is always piecework. To obtain a decent living in this way the patient must often work harder than he should or the rest of the family must help. Homework provided by Remploy Ltd., however, bears on the work in the factory to which the patient hopes to return. Remploy Ltd. factories will accept patients in whom sputum is positive, but few others will.

The Ministry of Labour rehabilitation units do not accept patients with a positive sputum, and those accepted at government training centers have to be capable of full employment. Dr. Marsh believes that colonies for tuberculous patients are outdated, as there they do not lead a normal life because they are too sheltered. Of almost 2,000 patients on the Camberwell Chest Clinic Register, 555 were capable of working and 460 of these were in full-time employment; 23 were working part time; and 75 were unemployed. Of the fully employed group, 3 had a positive sputum and 16 were in unsuitable occupations. Sheltered workshops for 2,510 patients in whom sputum is positive and retraining schemes for 3,780 with closed cases of tuberculosis are needed. These schemes can only be run at a loss. Patients with positive sputum must be kept away from their fellow workers—preferably in sheltered workshops employing small numbers. Some adequate form of family allowance would help to insure the adequate nutrition of the patient and his or her family and protect them from infection.

Legal Responsibility of Physicians.—An editorial (*Lancet* 2:599, 1955) states that in the eyes of the law both senior surgeon and the junior boilerman are servants of the hospital authority, which now assumes responsibility for the care of its patients and the actions of all its employees. The law now takes no account of the difference in status between professional and nonprofessional workers in hospitals. This view is generally unacceptable to physicians because patients are not cared for by committees, boards, or ministers. There was a hope that the law would follow the Scottish practice of recognizing the full responsibility of physicians to their patients. This is now no longer possible, since in a decision of Lord Cooper in an action brought by a patient against the Edinburgh Royal Infirmary Board, he denied that the duty imposed by the National Health Act on hospital boards was a purely administrative one and said: "Under the new Act and regulations the obligation on the State is in my view to treat the patient not merely to make arrangements for his treatment by and at the sole responsibility of independent contractors." *The Scottish Law Review* (August, 1955, page 177) argues that this does not threaten the relationship of physicians and patients. The hospital can no more give instructions to physicians about the care of patients than shipping companies can give orders to ships' captains about navigation. The *Lancet*, however, says that if the hospital is legally responsible for the physicians' actions and has to pay for his mistakes, sooner or later it will interfere with his clinical work in the hope of reducing these mistakes to a minimum. It is expected that the hospitals will introduce more and more rules limiting the physicians' freedom. In a referendum conducted by the Joint Consultants Committee (Scotland) among hospital physicians 10 to 1 were in favor of asking Parliament to reestablish in law their former relation to the management of the hospitals in which they work; i. e., the acceptance of full clinical and legal responsibility. It is clear that the medical profession in Britain is seeking to preserve in medicine the traditional ideal of service, which is only possible by full responsibility to the patient.

In the same issue of the *Lancet* a hospital physician states that it is now customary for some hospital management committees to issue books of rules for the medical staff. He was given a book of rules in which was stated: "(a) When a patient who has attempted to commit suicide is admitted, the house officer must notify the police immediately. (b) Resident officers shall give general anesthetics when required, but they shall not use chloroform or undertake spinal anesthesia." Presumably there would be no objection to their use of some new but potentially dangerous form of anesthesia. The voluntary reporting of patients to the police borders on unethical conduct. To frame rules of conduct for clinical practice in order to reduce the financial liability of the hospital in the event of litigation can only do harm to the profession and the public, and once it starts there is no knowing where it will stop.

Comparison of Iron Compounds.—Wilkinson and his co-workers have compared various iron compounds by therapy in patients with severe chromic anemia (*Lancet* 2:482, 1955). They thought that trial in these patients would give more reliable results than in mildly anemic pregnant women, who are usually the subjects of trials of this sort. All patients had a hypochromic, microcytic iron-deficiency anemia, with a hemoglobin level of less than 12 gm. per 100 cc. and a mean corpuscular hemoglobin concentration of less than 30%. All patients were free from complications likely to interfere with hematopoiesis, and they were comparable as regards age, sex, and hemoglobin level. The duration of the test was 42 days unless the hemoglobin level reached 13.3 gm. per 100 cc. before this time. Ferric hydroxide, ferrous sulfate, ferric succinate, and ferrous gluconate were given three times a day in tablets containing a quantity of the preparation equivalent to 70 mg. of elemental iron. Gastric acidity was investigated, and patients who had achlorhydria were given diluted hydrochloric acid. Hemoglobin level, red blood cell count, color index, serum iron, and mean corpuscular hemoglobin concentration were estimated weekly. No other medicament was given. Ferric hydroxide in the dose given never produced more than a 4% rise in hemoglobin level during the 42 days. This was attributed to the low dose, the dose being normally given at 6 to 12 times this level. The ferrous sulfate, ferrous gluconate, and ferric succinate produced almost equal and satisfactory hematological responses. The daily increases in hemoglobin level were 1.22%, 1.12%, and 1.25% respectively. Of the patients, 13% were intolerant of ferrous sulfate (nausea and vomiting) and 4% were intolerant of ferric succinate and ferrous gluconate. A month's treatment with ferrous sulfate costs 35 cents, with ferrous gluconate $1.05, and with ferric succinate $1.61. The increased cost of the gluconate and succinate is only justified if the patient is intolerant of the sulfate.

Hospital Bureaucracy.—In a recent editorial the *British Medical Journal* (2:609, 1955) deprecates the extent of bureaucratic control in hospitals. It comments on the correspondence in the *Times* on hospital administration that arose out of the dismissal of a resident because he attended a medical conference without the consent of the hospital committee. Apparently his chief had no objection and was satisfied with the arrangements made for the care of the patients in his absence but the hospital administration thought differently and dismissed him. "The penalty for disobedience is instant dismissal, and that, for the administrator, is that. Whether the patients in the hospital from which the resident is dismissed suffer because of the discontinuity of treatment thus brought about, and because of the loss of this man's professional skill, appears to be of less importance than the correct execution of the administrative rule of law, almost military in its severity." The administrator looks on the hospital service as an inefficiently conducted industry, and if a physician working in the hospital service does not obey the regulations he is dismissed. Similar situations in industry have precipitated strikes. Although the physician has clinical responsibility, the hospital administrator has the power to interfere with his work, prevent his advancement, and injure his career. In another case a well-known specialist was "asked to agree to surrender a hospital ward to another specialty to save an official of the hospital board from personal embarrassment. . . ." For similar reasons the advice of professional appointment committees was overruled. In the *Times* correspondence there were complaints of a "tight hierarchical system" and of "the struggle that is being waged with increasing intensity between the administrators and the medical and nursing staffs of our hospitals." Some administrators appear to act as though administration were an end in itself and not a means to the care of the patient.

Blood Grouping Patients with Peptic Ulcers.—Clarke and his co-workers have investigated the distribution of ABO blood groups in 1,665 patients with duodenal and gastric ulcers (*Brit. M. J.* 2:643, 1955). Compared with controls, they found a much higher frequency of group O blood among those with duodenal ulcers. The blood group distribution of patients with gastric ulcers was not significantly different from that of the controls. This finding of a significant difference in the frequency of group O in patients with duodenal and in those with gastric ulcers lends support to the view that they are two different conditions. Up to the present this view has been based on the differences in sex ratio, age incidence, precipitating factors, gastric acidity levels, and clinical course and the suggestion that these conditions are inherited independently. In carcinoma of the stomach in young diabetic patients and in pernicious anemia, there is a higher frequency of group A than in the controls. A common feature of these diseases is an abnormal level of gastric acidity, and it seems possible that the ABO genes may in some way modify the amount of hydrochloric acid a person can secrete.

Toxic Psychosis Due to Methyl Pentynol.—Methyl Pentynol is an unsaturated carbinol used in Great Britain as a sedative in place of barbiturates. Until recently it could be bought without a physician's prescription. Many undesirable side-effects have been attributed to it. Dr. F. Marley describes a 27-year-old woman in whom a toxic psychosis with neurological features due to Methyl Pentynol developed (*Lancet* 2:535, 1955). She was admitted to the hospital suffering from rhythmic nystagmus, prominent ptosis of the eyelids, facial immobility, dysarthria, and diplopia. She was ataxic, had a positive Romberg sign, and her deep reflexes were elicited with difficulty. She had visual and aural hallucinations. On questioning she stated that she took 50 capsules of Methyl Pentynol in the two weeks prior to admission. She bought these without prescription or medical advice. Within four days of stopping therapy with the drug, her condition reverted to normal. She agreed to taking further quantities of Methyl Pentynol under supervision. A dose of 19 gm. three times a day caused a return of the condition observed on admission, and an electroencephalogram showed a marked abnormality in her frontal and central regions. Her condition became normal again shortly after therapy was stopped.

Rehabilitation of the Cardiac Patient.—Two years ago the British Council for Rehabilitation set up an expert working party to consider the facilities for cardiac patients, which included treatment and subsequent employment. The working party recommends that in the child unwarranted invalidism should be avoided and that where the presenting sign, such as a cardiac murmur, is innocent, this should be conveyed emphatically to physician, patient, and parent. It is proposed that health officers should keep a list of children in whom heart disease has been diagnosed or suspected by school physicians and that these children should be investigated by a cardiologist. If the physical signs are of no significance, all concerned should be informed. All patients should be followed up to make sure that advice has been acted on. Local general practitioners should be informed of the facilities and invited to refer children with actual or suspected heart disease. Alternative superannuation schemes should be devised for cardiac patients engaged in occupations where, at present, they are debarred from such benefits on account of their ailment.

Adenoidal-Pharyngeal-Conjunctival Viruses.—A group of viruses, the adenoidal-pharyngeal-conjunctival (APC) group, have been recovered from tissue cultures of a high proportion of surgically removed adenoids and tonsils. Dr. E. Zaiman and his co-workers have demonstrated the existence of these viruses in Britain and their association with disease (*Lancet* 2:595, 1955). Adenoid tissue from 18 patients was cultured, and from the cultures 8 filtrable agents that were capable of causing degeneration in cultures of human embryo, lung epithelium, human kidney, and human embryo fibroblasts were obtained. Complement-fixing antibodies to the agents were demonstrated in the serums of 119 normal subjects at titers of 1:4 to 1:64. Titrations were also made on paired serums from 254 patients with acute respiratory disease of many types. Antibody levels in the serums in the acute phase were comparable to those in the above-mentioned groups. By complement fixation it was possible to recognize two cases of influenza A, 28 of influenza B, and 6 of influenza C infection.

International Pharmaceutical Federation.—At the 16th general assembly of the International Pharmaceutical Federation in London in September, the president of the British Pharmaceutical Society said that if pharmacy passed to the control of governments, however benevolent, there was grave danger that development would be hampered, professional enthusiasm hard to arouse, and the best interests of the public not served.

Meperidine Addiction.—The Ministry of Health has been asked by the World Health Organization to bring to the attention of physicians the risk of addiction to meperidine and the need for greater care in its prescribing. The expert committee states that addiction to this drug often results because of the widespread belief among physicians that it is less hazardous than morphine. Clinical and experimental experience shows that this is not so. As a potential agent of addiction, meperidine is no less dangerous than morphine, and this should always be borne in mind when prescribing the drug.

PERU

Endometrial Changes Induced by Hormones.—Dr. J. Arias Stella of the National University of San Marcos gave normal and castrated rats estrogen, chorionic hormone, or both in order to ascertain the individual and combined actions of these hormones on the endometrium. He found that an abnormal endometrial pattern characterized by unusual secretory activity, associated with extensive proliferative changes, can be elicited by the simultaneous action of estrogen and chorionic hormone. The nucleus of the proliferated epithelial cells is more vascular and swollen than normal. Most of these changes do not occur if the animals are given either estrogen or chorionic hormone alone but can be obtained when castrated rats are injected with large doses of estrogen and progesterone. Dr. Stella reported his findings at a special meeting held at the university in honor of Prof. Pedro Weiss, chief of the pathology department.

In normal rats receiving chorionic hormone and estrogen the ovaries were found to be greatly enlarged. Microscopic study showed the parenchyma to be entirely filled with corpus luteum and scattered follicles undergoing luteinization. The uterine walls were thicker than normal as a result of mucosal and muscular hypertrophy. In some segments of the endometrial surface showing atypical hyperplasia, there was a further marked proliferation with formation of cell aggregates that either invaded the stroma or bulged into the uterine lumen, adopting a papillary aspect. In these areas of proliferation as well as in some other portions of the mucosa, vacuolation and occasional mitoses were observed. Frequently, the vacuoles acquired a great size and by fusion formed large intraepithelial cysts. The glands were hyperplastic and showed scattered dilated lumens. In a second group of animals given only chorionic hormone, a normal progestational type of endometrium was obtained. Glandular hyperplasia was absent, and minimal vacuolation occurred in isolated cells of the epithelium. The author, by comparing the findings of the first group of animals with those of the second, concluded that vacuolation probably results from overproduction and faulty secretion of the hyperplastic cells. He therefore called them "intraepithelial retention cysts." In normal animals receiving estrogen alone the ovaries were smaller than normal and showed corpus luteum and follicles. On the other hand, frank endometrial hyperplasia and glandular cystic proliferation, with or without vacuolation, were observed in some areas of the endometrium.

The castrated animals receiving estrogen alone showed glandular hyperplasia with cystic formation. In another group of castrated rats given chorionic hormone alone the usual processes of secondary uterine involution followed castration, despite the administration of hormone. In castrated animals receiving both chorionic hormones and estrogen, no significant changes of the uterus were found and the histological pattern of the endometrium was similar to that observed during estrus. In the castrated animals receiving both estrogen and progesterone, gross and microscopic changes in the endometrium similar to those observed in the first group of normal animals were seen. These observations suggest that chorionic hormone stimulates the ovaries and releases large quantities of progesterone. Thus, it seems likely that the intensive vacuolation and proliferation result from the concurrent action of estrogen and progesterone, such changes being a synergistic effect of both hormones. On the contrary, the intraepithelial retention cysts occur rarely or not at all if estrogen or progesterone is given alone.

The cystic glandular hyperplasia induced by estrogen alone appears to be checked by the progesterone, since the normal animals given estrogen and chorionic hormone and the castrated animals given estrogen and progesterone did not show such changes. These observations support the idea, concerning the pathogenesis of the abnormal endometrial patterns found in certain cases of endometrial abortion, hydatiform mole, and chorioepithelioma, that the nuclear changes and the simultaneous occurrence of abnormal proliferative and secretory activities in some of these cases can be traced to hormonal actions. No matter what hormone was given, no squamous transformation of the epithelium was detected, but it is not known whether hormone administration over longer periods would ultimately lead to some form of metaplasia. The injections of hormones were given intramuscularly every day for 18 to 20 days.

Tuberculosis in Peru.—The Peruvian Tuberculosis Society held a symposium on the social, economic, and medical problems related to tuberculosis (*Revista del Viernes Medico*, vol. 3 and 4) in which it was stated that the insufficient funds available for the tuberculosis branch of the Ministry of Public Health and Social Welfare account in great part for the prevalence of tuberculosis in this country. Dr. Leopoldo Molinari said that the total morbidity rate for tuberculosis is 3% and the mortality rate is 2%, or 6.5 times that of the United States. At least 40,000 beds are needed for tuberculous patients, but the number available is only 3,000 (another 1,500 will be available soon). One of the main problems in the fight against tuberculosis is the need for financial assistance to needy patients. The Voluntary Antituberculosis Stamp authorized in 1947 has failed to provide the amount of money needed for this purpose. Dr. Cano Gironda said that the fight against tuberculosis aims at (1) the early detection of the disease by means of periodic mass roentgenographic examination, especially of persons who look healthy, in order to discover incipient lesions since adequate treatment of these patients with the new drugs gives a high proportion of cures; (2) establishing throughout the country a sufficient number of dispensaries, hospitals, and sanatoriums for the treatment of tuberculous patients;

and (3) providing financial aid to the patient's family. Dr. Huaco Vizcardo stated that more than 50% of the tuberculous patients in Peru lived in insanitary houses; in most of them a single room is shared with 3 or 4 other persons. In 60% of the homes of tuberculous patients, the family subsists on a grossly deficient diet due to a combination of poverty and ignorance. Dr. Pastor Balcazar reported that in the last decade in the "Dos de Mayo" Hospital of Lima for male patients, 16,172 tuberculous patients have been admitted. Of these, 5,236 have died; only 916 were cured; 7,079 were allowed to leave the hospital as improved but not cured; and the remaining 2,941 were discharged soon after admission as hopeless cases. Dr. Galvez stated that in Peru about 180,000 persons have tuberculosis (in Lima alone there are 30,000). About 12,000 patients die of this disease in a year. Many of these deaths were preventable. The highest incidence is among the natives who leave their homes far above sea level and come down to the lowlands to find work.

SWITZERLAND

Symposium on Poliomyelitis.—At the third symposium of the European Association Against Poliomyelitis in September, Professor Lepine of the virus division of the Pasteur Institute in Paris, France, stated that the amount of antibodies against poliomyelitis found in a person does not indicate the degree of immunity achieved. The antibody rate can give information on the general state of immunity of a population but tells nothing about the degree of individual resistance to paralytic infection. In virus diseases immunity resides especially in the tissues. Although the antibodies have a role in preventing viremia or in neutralizing the viruses that enter the blood stream, there is no proof that they alone intervene in the protection of the nervous system. Vaccination against poliomyelitis is directed against the paralytic complications of the infection rather than against the infection itself; therefore, reinfection through the digestive tract would not necessarily be prevented but might occur asymptomatically and act as a booster to the immunity produced by the vaccination. Because vaccination of an entire population would be wasteful of energy and money, and accidents might be caused in those few persons who cannot tolerate the injection of any foreign substance, it is recommended that only those persons who have been shown to have few, incomplete, or no antibodies be vaccinated. Determining these deficiencies is a tremendous job in itself, but it is the aim of public health authorities in France, Switzerland, and Italy, where the disease is relatively less common than it is in the Nordic countries. Lepine believes that vaccination should be performed in the latter half of the first year of life—that is, after the baby has lost the antibodies given to him through the placenta—but before his 12th month, since the greatest incidence of paralytic poliomyelitis occurs between the ages of one and three years. This first vaccination should be performed with a killed virus so as to obtain without risk the basic immunity needed for the appearance in the child's serum of the first antibodies against the three types of virus. To reinforce this primitive immunity, one could administer an attenuated vaccine, as advocated by Sabin.

Prof. Sven Gard of the virus division of the Stockholm Institute reported that vaccination campaigns have been undertaken in Sweden despite the reports of accidents occurring in the United States. No significant secondary reactions have been observed. It is theoretically impossible to obtain complete inactivation of the virus and preserve its antigenic power. The Swedish people are conscious of the risks of vaccination and are eliminating them gradually through research. They have already stopped using the Mahoney strain, which they consider too dangerous because of its instability. Campaigns have also been organized in Denmark this year, and more than 500,000 children were given subcutaneous injections, with no accidents reported. Preliminary results show that immunization against virus types 2 and 3 was successful, while that against type 1 was adequate in only 60% of cases, as Salk had predicted.

The acute phase of poliomyelitis is protean in character, and diagnosis outside of the paralytic phase is difficult. Professor Leroy of France advocates the use of anticoagulants and vasodilators such as tolazoline (Priscoline) every four hours to combat the aggravating vascular factor that produces anoxia and degeneration of the neurons in addition to the poliomyelitic lesions of the motor neurons. Dr. Charlotte Martin of Paris pointed out the importance of nursing and watchful care of patients with the acute phase of poliomyelitis, especially in the early paralytic stages in which recovery of function should be the primary goal. At this stage, pain must be combated and deformities avoided by proper positioning and hot packs. Dr. L. Schwartz of Brussels, Belgium, said that meningeal pain in the acute phase should be treated with aspirin and aminopyrine and peripheral pain should be treated with vasodilating agents. Professor Lassen of Copenhagen, Denmark, recommended caffeine for pain, whereas the German and French authorities preferred chlorpromazine.

Professor Dunois of Bern stated that deformities appear only as the result of muscular contractures of unknown cause. They occur in children and adolescents but not in persons who have attained full growth. Joint stiffness can appear after that age, but these are not deformities, strictly speaking. Paralytic deformities are observed only in the back and legs; the upper limbs are spared. This proves that not only the factor of movement is concerned here but also that of position. To prevent deformities, the therapeutic program must be varied according to the different phases of paralysis. The most important point is control of joint positions. Scoliosis can appear many years after paralysis has been forgotten. Dr. A. Grossiord of Garches, France, said that pain control is important in treating poliomyelitic rickets but position is also important. Maximal growth occurs where the pressure is least. A close watch should be kept for early evidences of muscular contractures. Improper nursing care of growing children with poliomyelitis can have tragic, irreversible consequences. If the patient is immobilized without the use of a corset, the sitting position is absolutely contraindicated. Instead, the inclined plane should be used, followed by standing and reeducation for walking. The child should circulate in the ward and go to class on a flat table with wheels. Kinetic therapy and hydrotherapy should be carried on as usual.

Dr. J. Knowelden of London, England, stated that immunizing injections against various diseases and tonsillectomy may predispose to poliomyelitis. His statistical evidence indicated that injections can either modify the distribution of paralyses in patients who would have had poliomyelitis anyway (paralysis of the arm in which the injection was given) or cause paralysis in patients who would only have had a nonparalytic infection. Tonsillectomy can favor a bulbar localization of the disease in certain patients, but its role is not entirely clear. Some authors have recommended that this operation not be performed in the late summer or early fall. Dr. R. C. Behrend of Hamburg-Eppendorf, Germany, admitted the predisposing influence of tonsillectomy, vaccination, the humoral state, and pregnancy but believed that other factors such as fatigue, participation in sports, climate, trauma, and surgical operations are much less important than some workers claim. On the other hand, Professor Mattia and Dr. Angela of Turin, Italy, consider fatigue an important aggravating factor in poliomyelitis. They based their position on experiments with monkeys. Others, using monkeys inoculated with poliomyelitis virus, studied the effect of lumbar puncture. In those monkeys that were late in developing symptoms, the easiest way of inducing symptoms was to perform a simple lumbar puncture, after which paralysis consistently appeared within 36 hours. This should not deter the medical profession from practicing lumbar puncture in all doubtful cases, because otherwise a diagnosis of tuberculous meningitis might be missed. On the other hand, in patients with known poliomyelitis lumbar puncture should, with rare exceptions, be deferred until the second week of illness.

Professor Lassen said that after the life-threatening acute phase is over and disorders of swallowing and circulatory complications are under control, the patient's chance of regaining independence from positive-pressure breathing apparatuses (combined with tracheotomy) depends chiefly on the severity and extension of paralysis of the muscles of respiration. From 70 to 80% of muscular regeneration occurs within the first three months. Withdrawal should be begun as soon as possible but must not be pushed, because fear might induce an intractable neurosis in the patient. Any patient treated with artificial respiration tends toward a state of hyperventilation that is accompanied by respiratory alkalosis. If this state is prolonged, it may play a part in the formation of renal calculi through prolonged secretion of an alkaline urine. This complication is often found in patients with chronic poliomyelitis. The stones are composed of calcium phosphates, poorly soluble in an alkaline milieu. The hardest point to get over in the process of withdrawal is sleeping without an apparatus. Respiratory infections must be avoided at any cost during this period. Once paralysis of swallowing is past, complications are checked, and a silver cannula has replaced the inflatable cuff, it is then permissible to consider replacing the positive-pressure apparatus by a cuirass-type or rocking-bed respirator. The cannula may be removed when the patient can breathe properly with the cannula blocked. In the last five months of 1952, Professor Lassen's department received about 3,000 patients with a diagnosis of poliomyelitis that was confirmed in 2,300 cases. Of a total of 1,250 patients with paralysis, 333 had signs of respiratory insufficiency. Seventy per cent of the 139 deaths occurred during the first week in hospital, but only 5% occurred after the first month of illness. Respiratory paralysis usually progresses rapidly. In most patients it lasts only a few days. The combination of paralysis of the diaphragm and of the intercostal muscles is the most dangerous and often leads to a chronic state, while the patients who have only one or the other regain respiratory function before the first month is up.

LAW DEPARTMENT

MEDICOLEGAL ABSTRACT

Malpractice: Surgeon's Liability for Acts of Anesthesiologist.—The plaintiff sued a surgeon and an anesthetist for injuries arising from the administration of a spinal anesthetic. From a judgment in favor of the plaintiff, both defendants appealed to the Supreme Court of Oklahoma.

The plaintiff was referred to the defendant surgeon for removal of a chronic appendix, which had been bothering her for some time. He told her that an anesthesiologist, whom she did not know, would administer the anesthetic. The plaintiff insisted that a general anesthetic, not a spinal, be given, and the surgeon agreed to that. The plaintiff was admitted to the hospital and on the day before the operation was assured by an assistant to the defendant surgeon that she would be given a general anesthetic. On the following morning, before being taken to the operating room, the plaintiff was given an injection of morphine, which left her somewhat hazy and groggy. She was placed on the operating table. Present in the operating room at that time were a nurse and the defendant anesthesiologist. The defendant physician was not there and did not come into the room while she was conscious. The nurse told her to turn on her right side. She said that she had never before had any type of operation nor had she ever been in an operating room, so that she knew nothing of the procedure of an operating room nor of how anesthetics were given. She therefore obeyed the orders of the nurse and turned on her right side. The nurse placed one hand beneath her knees and the other at the back of her neck and pulled her into a bowed position. The plaintiff felt a sting in her spine and then a grating sensation, and pains traveled down her thighs, legs, and feet. She heard the defendant anesthesiologist say to the nurse, "That must be just in the side," and immediately after he said this the nurse gave her an injection in her right arm and she went to sleep. When she awoke she was back in her hospital room. She had semiconscious periods but did not become fully conscious until three days later; from that time on she has had heavy cutting pains in her body from the hips down and has not been able to move any part of her body from the belt line down.

On behalf of the plaintiff an expert witness testified that the needle used in injecting the spinal block had punctured the spinal cord, allowing leakage of the spinal fluid. This resulted in inflammation of the spinal cord causing partial paralysis from the waist down, ankylosis of the hip joints, complete loss of power in the feet, shrinking of the legs, and migraine headaches. On the other hand, witnesses for the defendants testified that the plaintiff was suffering from poliomyelitis and that her paralytic condition was in no way related to the spinal injection. The anesthesiologist testified that before giving the injection he had checked the plaintiff's chart and had noticed nothing thereon that would indicate that a spinal block would be dangerous. He admitted that the plaintiff had told him that she did not want such an anesthetic, but he said that he assured her that it would be perfectly safe. She responded as follows, "Well, I will not be obstinate, but I want to go to sleep."

On appeal the Supreme Court first held that the evidence as to the cause of the plaintiff's condition was such that a jury would be justified in finding that the spinal injection was the causal factor. There was no evidence of any negligence, however, so the theory of the plaintiff's suit was one of assault and battery—in other words, giving a spinal anesthetic without the consent of the patient. On this theory the Court pointed out that from the state of the evidence the jury could find that the anesthesiologist well knew that the plaintiff objected to a spinal anesthetic but that he gave one anyway. Under the law this constitutes a battery, and the defendant anesthesiologist is liable for the harmful consequences of such an unlawful act. As to the defendant surgeon, however, the Court held that there was no evidence showing that he had consented to the spinal anesthetic or that he had failed to do anything that he could have reasonably been expected to do. He put the plaintiff's request on the chart for the anesthetist to read, and the anesthetist did read it.

Accordingly, the Supreme Court affirmed the judgment against the defendant anesthesiologist but reversed the judgment against the defendant surgeon. *Woodson v. Huey, 261 P. (2d) 199 (Okla., 1953).*

MISCELLANY

THE HISTORY OF SOCIAL SECURITY

F. J. L. Blasingame, M.D., Wharton, Texas

Perhaps I should preface my remarks by saying that the general heading, "History of the Social Security Act," is rather broad and could consume much more space than can be allotted. To attempt to give the subject its complete treatment, I would be forced to go back at least as far as the early 19th century and try to trace the evolution of the social theories of the economists of the European school. However, I think we will bypass the theories of the Utopian socialists, the Marxian socialists, and others and skip the social security experiments in Germany under Bismarck. I am reasonably certain that most are familiar with the trends in the United Kingdom that began to develop in 1911. The social security program came along somewhat later in France and was not adopted until 1928.

We are concerned with what happened in the United States during the depths of the great depression in the 1930's. It was then that the United States brought the social security system into being. The American people always have believed in individual initiative—in depending on their own ingenuity and in the philosophy that hard work will bring rewards. There was an incentive to work and to save and to succeed. Naturally, the depression hit hard. It wiped out savings and even denied men the opportunity of finding jobs.

Thus, the Social Security Act of 1935 was born of the depression in a climate that was receptive to government assistance toward the solution of problems resulting from a period of economic distress. By 1935 the American people had become conditioned to federal guarantees in other fields that at the time seemed logical and necessary. It was but a step to a broader concept that resulted in a nationally administered compulsory system of old age insurance, a system of unemployment insurance that would be operated by the states under federally prescribed standards and with federal aid, and a system of federal grants to the states intended to apply to other types of aid to the needy.

Government social insurance was designed on a two-pronged approach. As set up, it required that by individual thrift the beneficiary make regular contributions toward the cost of benefits to be received on retirement. On the other hand, the government through partial assistance for social welfare accepted the responsibility of providing for the handling of emergencies that cannot be coped with by private effort.

It is important to bear in mind that in the term "insurance" as it is freely used in connection with the Social Security Act and Old-Age and Survivors Insurance benefits, there is little resemblance to the term "insurance" as used in coverage provided by private companies. "Social insurance" does contain an element of private insurance practice in that in both cases premiums are paid. However, the resemblance ends there. Where the welfare factor enters in, there can be no actuarial relation between premiums paid in and benefits paid out as there is in private insurance.

A revealing view of social security can be obtained from a summary of the history of the Social Security Act from its inception to the present time. By reviewing events chronologically, I think the extent of the growth and expansion of the system and its benefits will be apparent.

The Social Security Act officially became law Aug. 14, 1935. The Social Security Board was set up Aug. 23, 1935.

On Aug. 10, 1939, the Social Security Act was amended to provide OASI benefits for dependents and survivors. This amendment made the tax applicable only to the first $3,000 in wages.

In January, 1940, monthly benefits were first payable under OASI.

On Jan. 1, 1950, OASI contribution rates were increased to 1.5% each for employers and employees.

In October, 1950, the first payments were made under the federal-state program of aid to the permanently and totally disabled.

In February, 1951, the number of aged persons receiving OASI benefits for the first time became greater than the number of recipients of Old Age Assistance aid.

On July 18, 1952, the Social Security Act was amended to increase benefits under OASI.

On April 11, 1953, reorganization plan no. 1 abolished the Federal Security Agency and transferred all its powers and functions to the Department of Health, Education, and Welfare.

On Jan. 1, 1954, OASI contribution rates were increased to 2% each for employers and employees.

On Aug. 3, 1954, the Vocational Rehabilitation Act was amended to call for the cooperation of vocational rehabilitation agencies with state public assistance agencies, the bureau of OASI, and other public agencies providing service related to vocational rehabilitation.

On Sept. 1, 1954, the Social Security Act was amended to extend OASI coverage to farmers, self-employed members of specified professions, additional farm and domestic employees on a voluntary group basis, to members of state and local government retirement systems, and, at the election of the individual, to ministers and members of religious orders. The act was also amended to raise to $4,200 the wage basis for tax and benefit computation purposes, raise ultimate contribution rates, increase benefits, liberalize the retirement test, and protect benefit rights of disabled persons through a disability freeze provision.

The Social Security Act was amended by the addition of New Title XV to provide unemployment insurance benefits for federal civilian employees financed by federal funds and paid by state agencies. The federal unemployment tax act was amended to include firms employing four or more persons in 20 weeks after Jan. 1, 1956.

By February, 1955, OASI beneficiaries numbered seven million.

Within 20 years the Social Security Act has been amended as follows with changes in the minimum and maximum OASI benefits payable:

Year	Minimum, $	Maximum, $
1935.........	10	85
1950.........	20	80
1952.........	25	85
1954.........	30	108

The system's rate of growth has been hinged to population gain as well as to the inclusion of additional groups in its coverage. In 1935 the United States total population was 128 million. In 1935 the total civilian labor force was 52,230,000. In 1954 the total population was 164 million and the total civilian labor force, 64,468,000. To date, major amendments to the Social Security Act in 1950 and 1954 have resulted in the extension of OASI coverage to 9 out of 10 of the nation's labor force. Within this 20-year period the system has grown to the point that 69 million workers will be in covered jobs this year, about 7.5 million beneficiaries are receiving checks totaling 385 million dollars each month, and, as of this year, about 90% of all paid jobs are covered under OASI.

Of course, the expansion of the system is reflected in the tax base increase. In 1937 the level was $3,000. In 1954 it climbed to $4,200. The rate of taxation has brought about periodic increases. In 1937 the tax was 1% of the payroll for employee and employer; in 1950, 1.5%; and in 1954, 2%. In 1956, if pending legislation becomes law, it will increase to 2.5%. The 1954 amendment set an ultimate maximum of 4% each for employee and employer. However, pending legislation would elevate that figure to 4.5%.

We all recognize that statistics are flat and colorless, whether they pertain to human beings or to dollars and cents. We have to explore beneath the surface figures to interpret them properly. Take, for instance, the statement that 9 out of 10 workers are covered under OASI. This means that they will receive monthly retirement benefits at age 65—and their widows and orphans may get monthly payments upon the death of the breadwinner.

Spokesmen for the Department of Health, Education, and Welfare emphasize that the administrative cost of operating the social security system has been held to minimum levels. However, it is all too clear that, with our expanding population and with 90% of the labor force given blanket coverage under the act, the growth of the system has far exceeded expectations of its early planners. It is significant to note that there are 14 million men and women in the United States now aged 65 or over and that nearly 60% of this group are receiving Old-Age and Survivors Insurance benefits or are working under the system and have acquired or are acquiring protection.

From the facts available, it is obvious that a system designed to provide social insurance as the first line of defense against economic insecurity has grown at an almost unbelievable and perhaps unmanageable rate of speed. As we reflect on this unchecked growth and the ever-broadening coverage and ever-increasing benefits, let us remember that this is 1955. If the same rate of growth and expansion occurs in the coming years at the same rate of speed, who could predict the outcome?

Spokesmen for the Department of Health, Education, and Welfare have emphasized that the department is constantly studying the programs to meet additional needs as they develop. Consider this statement in line with the prediction by HEW that the recent extensions of coverage in OASI alone will be providing lifelong benefits for nearly three-fifths of those persons aged 65 or over in the United States within 10 years.

The philosophy of the career executives in the social security system is to provide ever-increasing coverage, even universal coverage, and, with increased benefits, eventually perhaps 100% of the working population will be covered. HEW states that since social security is not a static program, it is evident that the intents, purposes, and aims of the social security system are to encourage the growth, expansion, and all-inclusive coverage of that particular branch of government. This, indeed, is sufficient to cause anyone to reflect soberly on the future for social security coverage in this country.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

The Use of Radioactive Iodine in Diagnosis and Treatment of Hyperthyroidism: Ten Years' Experience. E. M. Chapman and F. Maloof. Medicine 34:261-321 (Sept.) 1955 [Baltimore].

This review presents observations gained from the treatment of patients with radioactive iodine during the period from 1943 to 1953. Radioactive iodine is an effective form of therapy for patients with hyperthyroidism. The use of the isotopes I^{130} and I^{131} is based upon the natural avidity that the thyroid has for iodine and the emission of beta rays that radiate a distance of a few millimeters to produce an effect primarily in thyroid tissue. The uptake of radioactive iodine by the thyroid, the serum-protein bound iodine and the basal metabolic rate are the most informative tests in the evaluation of thyroid function and in the diagnosis of hyperthyroidism. In patients with hyperthyroidism, the response to oral doses of radioactive iodine is manifested by a gradual return of the metabolic processes toward normal. Most patients become euthyroid in two months. Some respond gradually over a period of 12 months or longer. When myxedema occurs, it is usually evident in four months, but it has been observed to develop as long as eight years after treatment. Because of this late appearance, the incidence of myxedema may increase with time. Seventy-five per cent of 520 patients treated with I^{131} responded to a single dose, 12% required more than one dose to achieve normal thyroid function, and 8% became myxedematous. The remaining 5% manifested a variety of clinical reactions. The authors not only doubt the value of using antithyroid drugs after radioactive iodine therapy but even feel that their use might be contraindicated. There has been no true recurrence of hyperthyroidism after the use of radioactive iodine for diffuse hyperplasia of the thyroid. Although more time will be required for the exact evaluation of the recurrence rate, the authors believe that it will be lower than after operative treatment, in view of the biological effects of this radiation on the thyroid cells. As regards the selection of patients, the policy has been to avoid treatment in persons under 40 years of age, because of the fear of inducing a cancer of the thyroid. Thyroid tissue removed from patients up to 12 years after treatment with I^{130} and I^{131} shows variable degrees of irregularity of the nuclei, persistent hypertrophy of acinar cells, and fibrosis. As time has passed and no cancer of the thyroid attributable to radioactive iodine has been demonstrated, the fear of it is diminishing. The authors do not advise the use of radioactive iodine in pregnant women beyond the fourth month of gestation. Although patients who have nodular goiters and hyperthyroidism can be effectively treated with radioactive iodine, it is felt that they are best treated by subtotal thyroidectomy, because of the possibility that one of the nodes may be malignant. An intense form of hyperthyroidism is indicated by severe ocular signs and symptoms. In 4 of 44 such patients, the eyes became worse after treatment with radioactive iodine. It was impossible, however, to ascribe this clinical course to the use of the isotope. Patients with hyperthyroidism and severe heart disease usually respond favorably to radioactive iodine. Myxedema imposes an added burden on the heart, and so relative hypothyroidism is a more desirable state for patients with heart disease. Swelling of the submaxillary glands, aching of the teeth, and loss of hair are minor biological effects of radioactive iodine therapy. Indexes of thyroid function after I^{131} therapy show a close correlation with the clinical evaluation in the majority of patients.

Some Cases of Coronary Localization of Thromboangiitis Obliterans (Bürger's Disease). P. Capra Marzani and F. Barberis. Riforma med. 69:715-719 (June 25) 1955 (In Italian) [Naples, Italy].

Thromboangiitis obliterans (Buerger's disease) in the coronary artery was observed recently by the authors in four men, heavy cigarette smokers, under or about 50 years of age. The symptoms of these patients; their age; the absence of heart disturbances, valvular defects, aortic lesions, arterial hypertension, and syphilitic, diabetic, and tuberculous manifestations; and the laboratory findings confirmed the fact that thromboangiitis obliterans was definitely present in the four men. In the differential diagnosis, arteriosclerosis obliterans, Raynaud's disease, and thrombophlebitis were ruled out. In the first and second patients the coronary symptoms appeared suddenly and preceded by several months and several years, respectively, the peripheral symptoms. In the second, a gastric ulcer followed the infarct and preceded the vascular disturbances. The fourth patient presented with a myocardial infarct that simulated an acute abdominal condition. Such infarcts, according to some authors, occur during digestion. Despite this limited number of cases, the authors' experience points to the possibility that severe coronary lesions and peripheral vascular alterations may have the same causative factor. It is suggested that patients with vascular disease, especially those with initial and mild peripheral signs, be subjected to systematic and periodical electrocardiographic examinations so that prophylactic and therapeutic measures may be taken.

Pulmonary Tuberculosis Due to Bacilli Resistant to Streptomycin and Isoniazid. J. McC. Murdoch and I. W. B. Grant. Lancet 2:587-588 (Sept. 17) 1955 [London, England].

The man whose history is reported was first seen as a contact of his sister, who had pulmonary tuberculosis. At that time, when he was 20 years old, roentgenograms of his chest gave no indication of tuberculosis. He subsequently served in the navy and was not seen again until five years later, when roentgenologic examination showed enlargement of the right hilar shadow and disease in the right lower lobe. The Mantoux reaction was strongly positive. A provisional diagnosis of active pulmonary tuberculosis was made, and treatment with aminosalicylic acid and with isoniazid was started. Positive sputum cultures obtained from the pretreatment specimens were subsequently tested for bacterial resistance to streptomycin, aminosalicylic acid, and isoniazid, and the organisms were found to be resistant to streptomycin and isoniazid, but sensitive to aminosalicylic acid. Subsequent sputum specimens always showed the tubercle bacilli to be resistant to streptomycin and isoniazid. As the patient's sister, with whom he had been in close contact, was excreting tubercle bacilli resistant to streptomycin and isoniazid and as the organisms isolated from the two patients showed an almost identical pattern of drug resistance, it seems reasonable to assume that the man was infected by his sister. So far as the authors know, this is the first instance of infection by isoniazid-resistant bacilli in which the source of infection could be traced. The patient's sputum became negative after he had been treated for a number of weeks with viomycin and oxytetracycline. The chest films also became normal, and he was able to resume his occupation. The organisms isolated from the patient's sputum were of low virulence for a guinea pig. In view of his rapid response to what has been described as a less effective treatment, that is, viomycin and oxytetracycline, it is possible that the bacilli were also of low virulence for the patient; but the fact remains that they were initially capable of producing a frank pulmonary lesion. The clinical significance of in vitro isoniazid resistance

---

The place of publication of the periodicals appears in brackets preceding each abstract.

Periodicals on file in the Library of the American Medical Association may be borrowed by members of the Association or its student organization and by individuals in continental United States or Canada who subscribe to its scientific periodicals. Requests for periodicals should be addressed "Library, American Medical Association." Periodical files cover 1946 to date only, and no photoduplication services are available. No charge is made to members, but the fee for others is 15 cents in stamps for each item. Only three periodicals may be borrowed at one time, and they must not be kept longer than five days. Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

has been denied by some, who continue to use isoniazid by itself in pulmonary tuberculosis. The fact that the reported case supports the opposite view is considered as additional justification for reporting it.

Differential Diagnosis Between Benign Ulcer and Ulcerating Carcinoma of Stomach. B. Sepúlveda, J. Deschamps, G. Serrano and M. Quijano. Rev. invest. clín. **7**:127-142 (April-June) 1955 (In Spanish) [Mexico, D. F., Mexico].

Two hundred thirty patients with peptic ulcer were observed during the last five years at the Hospital de Enfermedades de la Nutrición of Mexico City. Ulcerating carcinoma was detected in 21 patients by histological study of tissue removed during gastroscopy. The clinical symptoms and roentgen signs of these diseases are so similar that a differential diagnosis is difficult. A presumptive diagnosis is made by correlating the roentgen and gastroscopic signs. Ulcerating carcinoma shows during endoscopy as a lesion of dark red color with irregular borders, a pale ulcerated mucosa, and rigid infiltrated margins. A positive diagnosis can be made only by a histological study of a fragment of the borders of the ulcer taken during gastroscopy or by the lack of response of lesions to medical treatment. The program followed in the Hospital de la Nutrición is as follows: 1. If the roentgen and gastroscopic signs are those of ulcerating carcinoma, immediate operation follows. 2. If the same signs are those of benign ulcer, strict medical treatment is given for four weeks, at the end of which the roentgen examination and gastroscopy are repeated. If the roentgen and gastroscopic signs of malignancy persist, a diagnosis of probable ulcerating carcinoma is made and an immediate operation performed. If signs of malignancy disappear, medical treatment is continued for two years. During the first year, the patient is seen in consultation every month. Roentgen examinations are made every three months. During the second year, the patient is seen in consultation every three months. Roentgen examinations are made every six months. If the ulcer reappears months or years after having completely healed, it indicates malignancy. Immediate operation follows.

Laparoscopy in Clinical Practice: Importance of Controlled Hepatic Biopsy. G. Sotgiu and G. Lenzi. Minerva gastroenterol. **1**:2-12 (June) 1955 (In Italian) [Turin, Italy].

Although laparoscopy is a valuable and often a decisive diagnostic means, it is not widely used in Italy. The main objection to this procedure, especially by surgeons who overlook the fact that patients do submit to it much more easily than to a laparotomy, is that the abdominal organs are best studied by means of the latter method. Laparoscopy is indicated for conditions involving the peritoneum, the liver, and the biliary tracts. It should always be performed by an experienced person under conditions of perfect asepsis and antisepsis. At the authors' clinic laparoscopy is always preceded by induction of a pneumoperitoneum performed with an instrument that makes it possible to measure the exact amount of air introduced and the pressure of the air within the abdominal cavity and to keep automatically, for the entire period of the laparoscopy, the desired pressure therein independently of the movements of respiration and of abrupt contractions of the abdominal walls. After the laparoscopy is completed, the air is removed through the opening into which the laparoscope was introduced; the small opening is closed; and healing takes place rapidly. The authors performed 102 laparoscopies on patients with diseases of the liver, biliary tracts, and peritoneum. Their good results proved that it is possible with this procedure to solve diagnostic doubts, confirm a tentative diagnosis, establish a diagnosis that would not have been possible with clinical investigations alone, and select the best medical or surgical treatment. A procedure closely linked to laparoscopy is controlled or laparoscopic liver biopsy, with which the accidents that are due to the standard blind method of liver biopsy are avoided. The authors state that liver biopsy should always, except in very rare instances, be performed under laparoscopic control. Laparoscopy alone or combined with controlled liver biopsy enabled them to solve with certainty a differential diagnosis between specific and cancerous peritonitis; catarrhal jaundice with typical and atypical course and neoplastic jaundice; and severe hepatitis, abscesses, and neoplasms of the liver. It also enabled them to identify hepatic amyloid degeneration and echinococcosis of the liver; to establish, together with the histological study of the biopsy specimen, the exact phase of hepatic and cirrhotic processes; and to determine whether a condition was operable.

Esophageal Varices: Causes Other Than Cirrhosis and Portal Vein Block. E. D. Palmer and I. B. Brick. J. Am. Geriatrics Soc. **3**:681-686 (Sept.) 1955 [Baltimore].

Palmer and Brick are concerned with the esophagoscopic detection of varices, being convinced that, in cases of upper gastrointestinal hemorrhage, it is necessary to consider the possibility of esophageal varices as the cause, even though there is nothing to suggest the presence of cirrhosis or portal vein block. Patients were studied esophagoscopically, as the clinical situation dictated, during the course of their regular evaluation or treatment. Thus the data were collected at random, there being no routine survey of various diseases. Except for the pregnant women and 30 of the achalasia patients, persons were included in this compilation only if the liver had been studied histologically, either by needle biopsy or at autopsy. All patients with the diagnosis of schistosomiasis, extrahepatic portal vein block, or cirrhosis, including hemochromatosis, were excluded. Examination for esophageal varices was made under 4-diameter magnification with the Eder-Hufford esophagoscope. Gastroscopic examination for gastric varices was made in 69 patients, but there was only one positive result. The criteria for inclusion were met by 166 patients, classified in 1 of 12 disease categories. Varices were found in 61, but in some of these they were of minimal diameter and extent. It was demonstrated that esophageal varices occur in many clinical situations not heretofore suspected of being accompanied by portal hypertension. Several types of liver disease other than cirrhosis can produce varices. These lesions may develop quickly. Examination of 21 patients during the active phase of infectious hepatitis, for instance, showed esophageal varices in 11, in some as early as six days after onset of the disease. The varices were judged to be mild in nine of these patients, and all of them were too small to permit satisfactory measurement of portal pressure. It was also found that chronic congestive heart failure and the latter half of pregnancy are particularly likely to give rise to esophageal varices, although they rarely cause hemorrhages in these conditions.

Oral Treatment of Pernicious Anemia with Vitamin B_{12} Without Intrinsic Factor. E. H. Reisner Jr., L. Weiner, M. T. Schittone and E. A. Henck. New England J. Med. **253**:502-506 (Sept. 22) 1955 [Boston].

Of 43 patients with pernicious anemia, 13 were given 1 mg. of vitamin B_{12} orally in tablet form once a week, 3 received the same dose by the same route twice weekly, 21 every second week, 3 every third week, and 3 every fourth week. If there appeared to be any hematological or neurological relapse, the interval between doses was diminished by half. In none of the patients was intrinsic factor added to the vitamin B_{12}. The patients were followed on this therapy for periods of 12 to 28 months, with an average of 20.9 months. From studies on relapse rates with the different dosage schedules it appeared that, with a few possible individual exceptions, weekly treatment with 1 mg. of vitamin B_{12} would be satisfactory for all patients with pernicious anemia.

A Comparison of Cortisone and Aspirin in the Treatment of Early Cases of Rheumatoid Arthritis: A Second Report by the Joint Committee of the Medical Research Council and Nuffield Foundation on Clinical Trials of Cortisone, A. C. T. H., and Other Therapeutic Measures in Chronic Rheumatic Diseases. H. Cohen, E. G. L. Bywaters, W. S. C. Copeman and others. Brit. M. J. **2**:695-700 (Sept. 17) 1955 [London, England].

Of 61 adult patients with early and uncomplicated rheumatoid arthritis, 30 were treated with cortisone and 31 with acetylsalicylic acid (aspirin), their allocation to treatment with one or the other agent being made entirely at random. Observations of these two groups of patients in the course of the first year after the start of the treatment were reported previously (*J. A. M. A.* **156**:289 [Sept. 18] 1954) and showed that the patients had run a closely parallel course in nearly all respects, including joint tenderness, strength of grip, tests of dexterity of hand or foot, and clinical assessments of the activity of the disease and of the patient's functional capacity. In the present report the comparison of the two treatment groups was extended to approximately two years from the beginning of the treatment. In the second year of therapy, treatment with one or the other agent was continuous and individualized by the physician in charge to meet each patient's need. The average value of the maintenance doses employed was 80 mg. of cortisone daily and 4.5 gm. of aspirin daily. At approximately the end of two years of treatment, 58 of the original 61 patients were reassessed clinically, submitted to some simple objective tests, had roentgenograms made of their hands and feet, and had their hemoglobin levels and erythrocyte sedimentation rates measured. In no respect did the two groups differ by more than might easily be due to chance and in most respects they were distinguished more by their similarities than by their differences. At the end of two years, therefore, as previously reported at the end of one year, it appears that for practical purposes there has been remarkably little to choose between the use of cortisone and aspirin in the management of these patients.

Low Back Pain: The Hyperextension Syndrome. I. Macnab. Canad. M. A. J. **73**:448-454 (Sept. 15) 1955 [Toronto, Canada].

One common type of low back pain is brought on by hyperextension of part or of all of the lumbar spine. It is commonly seen during and following pregnancy and in the 35 to 45 year age group, in people of increasing weight and decreasing tone of abdominal muscles. The patient complains of pain over the lumbosacral region. The pain may be referred to both buttocks and on occasions may be referred down the back of the thigh, but is not experienced in the calf. Pain radiating down the back of the leg as far as the calf is much more likely to be due to nerve root irritation. In the hyperextension syndrome, the pain is aggravated by any activity that puts an extension strain on the back, such as lifting the baby out of the play pen, pushing up windows, or prolonged stooping as in bedmaking or washing the hair over a basin. During the acute severe attack of pain the patient should be nursed in bed in a flexed position (semi-Fowler). This is achieved by putting a small wooden crate under the mattress at the foot of the bed and a rolled-up blanket or another box under the mattress at the head of the bed. The buttocks should rest on the part of the mattress that is beginning to slope up towards the raised lower end of the bed. When the pain has subsided the patient should be given exercises designed to build up the strength of the gluteal and abdominal muscles in an attempt to decrease the lumbar curve. One of the most important aspects of treatment is reeducation. The patient should learn to stand with the stomach pulled in and the lumbar spine straight. The most comfortable way for these patients to sit is with the knees higher than the hips—as when the feet are placed on a footstool or as when sitting with the knees crossed. Housewives must be told that all their cleaning equipment should have long handles and that they must not stoop forward when using it. They must not carry heavy loads in the laundry basket. If they stand for any length of time, they should keep one foot on a low footstool. The kitchen should be so arranged that articles in daily use are stored on shelves at shoulder level. Some patients require a back support in addition, and this should be so designed that it tends to flatten the lumbar spine. Corsets for women should be reinforced with four rigid posterior steels, which should not curve to fit the spine but should run in a straight line from the thorax to the sacrum, so that when the front of the corset is tightened up the spine will be flattened against the steels. If this point is not observed, the corset will tend to hold the spine in the position of deformity and perpetuate the symptoms. For men, the Williams flexion brace is ideal. These patients should avoid heavy lifting, reaching, and stooping. They should not get overtired. The obese must lose weight; it is almost impossible to stop back pain in a patient who is overweight and who has a hyperextended spine.

Micrococcus (Staphylococcus) Enteritis After Antibiotic Treatment with Special Regard to Fatal Cases. E. H. Thaysen, K. R. Eriksen, K. Fischermann and H. E. Knudsen. Ugesk. læger **117**: 1047-1054 (Aug. 18) 1955 (In Danish) [Copenhagen, Denmark].

Antibiotic agents, particularly Aureomycin and Terramycin, with potent effect on the intestinal flora can introduce risk of the development of Micrococcus (Staphylococcus) enteritis. Reduction of intestinal flora through antibiotic treatment allows multiplication of micrococci in the intestinal tract. Fatal Micrococcus enteritis is relatively rare, although a number of cases have undoubtedly escaped publication and/or diagnosis. Five fatal cases from Copenhagen during the last year are reported. It is impossible to foretell which patients may be liable to the complication. It is manifested by severe diarrhea, with green, watery stools, and by toxemia, dehydration, and circulatory collapse. The first symptom generally appears from the third to the fifth day of antibiotic treatment. In the gravest cases the shock is refractory to treatment and leads to death in from one to six days. The use of Aureomycin and Terramycin can be continued, provided the indications are clear and the patients are carefully controlled during treatment. Grave Micrococcus enteritis has been observed only in hospital patients. Peroral administration of the two tetracycline derivatives is believed to be more risky than parenteral administration. During treatment with tetracyclines, laxatives and enemas should probably not be given. Dyspepsia with anorexia, vomiting, and possibly milder diarrhea calls for especially careful control. If the symptoms are accentuated and if fever occurs, the treatment should be terminated at once. If there is marked diarrhea or unexplained circulatory collapse, immediate peroral administration of erythromycin (300 to 400 mg. four times daily) is advised. Before treatment with erythromycin, cultivation from the feces on a special medium with reference to micrococci is necessary, together with determination of resistance as a guide for continued treatment. If the micrococci prove resistant to erythromycin, Nebacetin can be tried.

Clinical-Immunobiological Observations in an Epidemic of Ornithosis, with Particular Consideration of the Effect of Chlortetracycline (Aureomycin). W. Benstz. Medizinische, no. 35, pp. 1186-1189 (Aug. 27) 1955 (In German) [Stuttgart, Germany].

Of 11 patients between the ages of 4 and 64 years with ornithosis who were admitted to the first medical clinic of the City Hospital of Karlsruhe, Germany, in the fall of 1953, 8 had been infected by parakeets and canaries bought from the same animal wholesale dealer in the city, and 3 had been infected by parakeets bought from two animal retail dealers in the suburbs. The author prefers the term ornithosis to psittacosis, because homebred birds such as sparrows, pigeons, finches, chickens, ducks, and pheasants may be the carriers of the virus as well as the exotic birds. Of the 11 patients, 6 (group 2) were treated with chlortetracycline and 5 (group 1) were not treated with this antibiotic. The daily dose of chlortetracycline varied from 1 to 2 gm., which was given in divided doses in the course of 24 hours. The total dose was 6 and 10 gm., respectively, in the two patients who received a daily dose of 2 gm., and the total dose varied from 11 to 24 gm. in the four patients who were given a daily dose of 1 gm. Temperature was restored to normal within 12 to 48 hours. The pulse rate also dropped, but its fall was more or less delayed depending on the severity of the disease. In the five patients of group 1, the titer of the complement fixation reaction was more or less increased eight weeks after the temperature was restored to normal, and in two of these it was still increased after 12 months. In group 2, which consisted of severely ill patients whose titers were higher on the average than those of the patients in group 1, the titer rose in two after the temperature was restored to normal. After 12 months, the complement fixation test gave a negative result in two, two others showed a marked drop of their titers, and the remaining two still had increased titers. Because of the small number of patients and the heterogenic results, changes in the titer resulting from chlortetracycline therapy can not be considered a definite sign of relief of the reticuloendothelial system. Shift to the left in the differential blood count, leukocytosis, and erythrocyte sedimentation rate were restored to normal within

40 to 60 days in group 2, and convalescence was particularly delayed in two patients as compared to the serologic findings. The relatively long-continued duration of an increased titer also after chlortetracycline therapy, corresponding with circulatory lability and generally reduced work capacity, suggests that antigens may be present in the organism for a long time after temperature has been restored to normal; additional therapeutic measures may, therefore, be required. Prolonged treatment with chlortetracycline seems to be preferable to that with higher doses for a shorter period. Treatment should be continued until the titer shows a tendency to fall, i. e., until the defense powers of the body do no longer require exogenous support. This may be obtained with a total dose of 15 to 25 gm. of Aureomycin given in the course of 15 to 25 days.

Practical Value of Determinations of Resistance to Antibacterial Agents. E. Steen. Nord. med. **54:**1269-1273 (Aug. 18) 1955 (In Norwegian) [Stockholm, Sweden].

Carefully performed determination of resistance is a valuable aid in the selection of the most effective therapy. It is not an absolute guide, as the tests do not take into account the conditions in vivo. The clinician has to consider the interplay between the bacteria and the organism, the localization and course of the infection, and toxic reactions, possible allergy, and ways of administration and dosage. This may lead to the choice of not the agent most effective in vitro but perhaps the next most effective. If the causative bacteria show wide variation in sensitivity, as micrococci (staphylococci), enterococci, and some gram-negative bacteria, it is important to isolate the bacteria and determine the resistance. If need be, treatment with the chemotherapeutic agent considered the most suitable can be started as soon as the test is made. If the treatment is without effect in the course of two or three days, it must be revised; by this time the answer to the resistance test should be available. Determinations of resistance should be carried out in the case of fulminant infections or of relapse during treatment. In chronic infections, where the time factor does not play an important part, and when toxic or allergic reactions exclude application of the usual chemotherapeutics, determinations of resistance should unconditionally be made. The role of the laboratory is to establish and confirm the use of the proper chemotherapeutic agents. Determinations of resistance are also significant in preventing the misuse of chemotherapeutics. Misuse leads to a constant increase of toxic and allergic reactions and a dangerous change of intestinal flora. The criterion whether the results in vitro can be applied as a guide for therapy will be whether there is agreement between the determinations of resistance and the results of treatment.

Chronic Ulcerative Colitis Due to Pollen Allergy with Six Case Reports. A. H. Rowe, A. Rowe Jr. and K. Uyeyama. Acta med. scandinav. **152:**139-151 (no. 2) 1955 (In English) [Stockholm, Sweden].

The cases of four women between the ages of 28 and 48, one 33-year-old man, and one 12-year-old girl with chronic ulcerative colitis are described. Pollen allergy was the sole cause of seasonal chronic ulcerative colitis in three of these six patients. Pollen allergy was the major and possibly the sole cause in one of the three other patients, while food allergy in addition to pollen allergy was considered in the two remaining patients. Perennial desensitization with a multiple pollen antigen containing all of the pollens of major or moderate importance in the patient's home, recreational, and work environments, even though skin tests yielded negative results, controlled the seasonal chronic ulcerative colitis (July to December) in one patient for 14 years, except for a mild recurrence of colitis of two weeks duration after pollen therapy had been discontinued for eight months. Pollen therapy controlled the seasonal chronic ulcerative colitis in three other patients for three years, two years, and one year respectively. No elimination diet and no drugs were employed in these four patients. In the remaining two patients considerable improvement was obtained with pollen therapy and the addition of strict elimination diet. Determination of possible pollen allergy depends on a history of occurrence or exaggeration of chronic ulcerative colitis in the pollen season. Positive reactions to skin tests may be absent. Confirmation of pollen allergy depends on good results obtained with prolonged proper desensitization. When pollen allergy is the sole cause of chronic ulcerative colitis, perennial desensitization with multiple antigens, without drugs or elimination diet, will gradually produce good results in three to nine months and excellent results in one to three years. In patients in whom food and rare drug allergies are associated with pollen allergy, these associated allergies require control. In the presence of secondary infection and anemia, administration of antibiotics and sulfonamide compounds and blood transfusions may be required. Administration of antispasmodics and antidiarrheal drugs, in addition to antiallergic therapy, may be necessary for brief periods only or not at all. Corticotropin (ACTH) and cortisone, which may exert a favorable effect on fulminating symptoms of ulcerative colitis, were not available for the treatment of the authors' patients. With the control of food and pollen allergy, the administration of antibiotics, and other valuable adjuncts, surgical treatment of chronic ulcerative colitis will be required less frequently. In the course of the last seven years ileostomy and colectomy were advised in only two of the authors' patients with chronic ulcerative colitis. One was a young woman who cooperated in antiallergic therapy; after four months of treatment, however, obstruction of the ileocecal valve made surgery indispensable. The other patient was well controlled with the elimination of allergic foods for three years; she insisted on taking some excluded food, was given cortisone to allow the ingestion of these foods, and within two weeks perforation of the sigmoid occurred, which necessitated ileostomy and colectomy.

Effect of Yogurt with Prune Whip on Constipation. F. P. Ferrer and L. J. Boyd. Am. J. Digest. Dis. **22:**272-273 (Sept.) 1955 [Fort Wayne, Ind.].

The yogurt available now is a product of pasteurized milk inoculated with strains of Lactobacillus bulgaricus and Streptococcus thermophilus. It removes putrefactive and other organisms from the intestinal tract by changing the flora. Yogurt has essentially the same effect as acidophilus milk, except that (1) it is stable for a longer period—two weeks as compared with two days—and (2) it has a uniform creamy consistency and pleasant taste, whereas acidophilus milk may have a sour milk taste. Prunes likewise act as a natural intestinal stimulant in promoting intestinal elimination without purgation. The authors used a combination of 5.5 parts of prune-whip and 2.5 parts of yogurt in the treatment of 194 patients with constipation, who were being cared for in wards and who had a typical cross section of chronic geriatric illnesses, except that the gravely ill were not included. The average age of the patients was 71.6 years. Over 46% were diabetic. No laxatives were required during the period of administration of the prune-whip-yogurt in 187 or 95.8% of the patients, whereas the remaining 7 patients still required laxatives. An increase in the blood sugar level but little or no glycosuria resulted in 22% of the patients with diabetes. During the period of the prune-whip-yogurt administration, the patients showed improvement in skin tone, in seborrheic dermatitis, in chronic ileus, and in diabetic ulcers. Furthermore, the morale was improved, and there were fewer requests for additional food.

The Mortality in Australia from Cancer for the Period 1946 to 1950. H. O. Lancaster. M. J. Australia **2:**235-239 (Aug. 13) 1955 [Sidney, Australia].

This report is a summary of the vital statistics on cancer in Australia for the years from 1946 to 1950. The term cancer is used to include any malignant growth, that is, carcinoma, sarcoma, and melanoma, but the leukemias and Hodgkin's disease are not included. There have been some improvements in the death rates from cancers at all ages, but the death rate from cancer of the lung has steadily increased, especially in males. This is the only important rise in the death rates among the common cancers. Of the cancers showing definite trends, improvements were noted for those of the uterus, buccal cavity, esophagus, stomach, liver, and larynx. Previous upward trends in the death rates from cancer of the ovary and breast appear to have ended.

SURGERY

Pulmonic Stenosis with Left-to-Right Ventricular Shunt. S. Contro and P. Brostoff. Am. Heart J. 50:543-550 (Oct.) 1955 [St. Louis].

The occurrence of pulmonic stenosis is reported in eight patients, ranging in age from 5 to 24 years, with a left-to-right shunt between the ventricles, an oxygen increase from right atrium to ventricle of at least 1.1 vol. %, a pulmonary flow greater than the systemic, and a systemic arterial oxygen saturation of at least 90%. The salient clinical features of these patients were normal development, absence of cyanosis at rest, reasonably good adaptation to the congenital anomaly, and absence of clubbing. The vascularity of the lungs was normal or increased, even when the second pulmonic sound was markedly diminished or absent, and the classical murmur of pulmonic stenosis was heard. The electrocardiogram showed strain of the right side of the heart, usually associated with evidence of right bundle branch system block. Patients with pulmonic stenosis and left-to-right ventricular shunt are presenting the clinician with a therapeutic dilemma, because pulmonic valvulotomy and/or infundibular resection may be deleterious by producing *a left-to-right shunt of tremendous magnitude, actually causing* the patient to bleed as it were into his lung and die in shock. Shunting procedures, the other surgical approach to pulmonic stenosis associated with ventricular septal defect, are not necessary, since the patient is acyanotic and has a good pulmonary flow. Since patients like those reported on usually tolerate their congenital anomaly quite well, it would appear to be wiser to await the future development of more practical surgery for septal defect.

Direct Vision Intracardiac Surgical Correction of the Tetralogy of Fallot, Pentalogy of Fallot, and Pulmonary Atresia Defects: Report of First Ten Cases. C. W. Lillehei, M. Cohen, H. E. Warden and others. Ann. Surg. 142:418-445 (Sept.) 1955 [Philadelphia].

Ten patients, all of whom were seriously ill with Fallot's tetralogy, were operated on by direct vision intracardiac curative procedures, using controlled cross circulation for the necessary interval of total bypass of the heart and lungs. Through application of the low flow concept to this perfusion technique, important simplifications in method became possible. Based upon the azygos flow experimental studies, the authors perfused these patients during their bypass interval at a rate of blood flow approximately ⅙ to ¼ of the resting cardiac outputs for normal individuals of comparable size and weight. These flow volumes varied from 23 to 29 ml. per kilogram of body weight per minute. In the 10 patients so managed, the heart and lungs were totally bypassed from 6 to 21½ minutes. All of the six patients who survived have a normal clinical appearance and are asymptomatic postoperatively. The systemic artery oxygen saturations are also within normal range in all. The first two patients operated upon were subjected to recatheterization of the right side of the heart from six to seven months after the operation. The first patient remains asymptomatic but has a small left to right shunt high in the right ventricle. The second has normal oxygen contents and pressures demonstrating that complete anatomic and physiological restoration to normal can be achieved in a patient born with these tetralogy defects. Two more complicated defects were also successfully managed by these corrective techniques. The first of these concerned a 22-month-old girl with complete atresia of the main pulmonary artery at its origin, in whom it was possible to close the ventricular septal defect and to create a new opening at the top of the outflow tract in the right ventricle to which the pulmonary artery was anastomosed. The other patient was a 10½-year-old boy with a pentalogy of defects in whom simultaneous atrial and ventricular cardiotomies were well tolerated. The authors feel that the operation is the method of choice for all patients with the tetralogy of Fallot who are in need of surgical treatment. For the lesser degrees of disability, they recommend temporary postponement of any surgical operation and periodic reevaluation of the patient's cardiac status. For the patient currently in need of surgical treatment for whom an intracardiac procedure is not available, they recommend an anastomotic operation without the opening of the pericardium. This operation provides palliation and does not interfere with an intracardiac operation should it be deemed necessary subsequently.

Middle-Lobe Syndrome. G. E. Lindskog and H. C. Spear. New England J. Med. 253:489-495 (Sept. 22) 1955 [Boston].

A typical case of atelectasis with chronic pneumonitis involving the right middle lobe, which has been classified as a clinicopathological entity called "middle-lobe syndrome" by Graham and co-workers, is described in a 25-year-old woman. The patient's chief complaint was a chronic productive cough of several years' duration. For four years prior to admission to the Grace-New Haven Community Hospital in Connecticut, she had had increasingly frequent and prolonged upper respiratory infections. Repeated sputum examination had been negative for acid-fast bacilli by smear and culture. Iodized oil (Lipiodol) bronchograms revealed atelectasis and extensive saccular bronchiectasis of the middle lobe, which were confirmed at lobectomy. Although the pathogenesis of the clinical, radiological, and bronchoscopic manifestations of the middle-lobe syndrome have been clarified, an accurate differential diagnosis is often difficult or may be impossible before operation. The problem of differential diagnosis is illustrated by the reports of six cases in two men and three women between the ages of 57 and 76 years and a 7-year-old boy who were admitted to the same hospital in the course of the preceding 12 months. The lesions in these six patients included bronchogenic carcinoma; atelectasis and organizing pneumonitis secondary to tuberculous hilar lymphadenitis; parenchymal tuberculosis; chronic abscess with organizing pneumonitis; acute pneumonitis, with resolution; and lipid pneumonia. Each of the six cases constituted a distinct pathological entity, the sequelae of which may be progressive and fatal, but each patient presented some clinical and radiological features in common with middle-lobe syndrome. The definitive diagnosis of middle-lobe syndrome can be made only by surgical intervention, which was performed in all seven patients, and after examination of the resected specimen, but not on the basis of clinical, bronchoscopic, and radiological findings.

The Place of Parasternal Curettage in the Treatment of Breast Cancer. H. Redon and J. Lacour. Presse méd. 63:1173-1176 (Sept 10) 1955 (In French) [Paris, France].

The authors treated 100 patients with cancer of the breast by radical amputation with removal of the parasternal lymph nodes. In 20 instances they also performed supraclavicular emptying, in addition to axillary and internal mammary dissection. Patients who had had previous radiation therapy were not excluded from the group. Sixty had tumors of the internal or median portion of the breast, and 40 had them in the external quadrants. No attempt was made to preserve cartilage, because the authors had observed three cases of painful chondritis in a prior series of patients. There was no operative mortality in the present series; four patients had aseptic pleural effusions that were resorbed spontaneously, and three had considerable disunion, severe enough in one instance to require secondary grafting. Such disunions have become exceptional since the routine use of closure under tension. It was found that the internal mammary nodes were invaded in 26% of the cancers of the internal quadrants or the median portion and in 15% of those of the external quadrants. They were the only site of metastases in two cases. There were four cases of involvement of the supraclavicular nodes. Follow-up of these patients has ranged from six months to two years, and the 19 patients who have died have been studied from various points of view. It appears that removal of the internal mammary nodes does not aggravate the prognosis, as evidenced by a comparison of this series with 100 patients in whom the Halsted operation alone was performed. However, the rate of relapse and of metastasis formation in the first postoperative year was definitely greater in the patients who were given this broadened surgical treatment. It is possible that the greater trauma of this method is a contributing factor.

Agammaglobulinemia: An Approach to Homovital Transplantation. R. L. Varco, L. D. MacLean, J. B. Aust and R. A. Good. Ann. Surg. 142:334-345 (Sept.) 1955 [Philadelphia].

While the establishment of enduring homovital grafts has long been a challenge to medical science, the facts are that organ transplants between persons (with the exception of homozygotic twins), despite initial acceptance, ultimately are rejected by the host. Since the immunologic theory of antigenicity in the donated organ provoking an antibody reaction-rejection in the host has more current support than other hypotheses, the possibilities in that experiment of nature which is congenital agammaglobulinemia seemed worthy of investigation. Four persons with gamma globulin deficits of varying magnitudes received skin grafts from unrelated eugammaglobulinemic adults of dissimilar blood type. Homotransplantation of skin proved possible in two children with congenital agammaglobulinemia. In both of these children extensive immunologic studies were carried out, which revealed that the underlying deficiency was an immunologic paralysis. Each of these two children, in whom the total amount of gamma globulin was less than 15 mg. per 100 cc., continued to maintain the integrity of the grafted cutaneous layer, the time elapsed since grafting in one being 13 months and in the other 4 months. A third child, in whom agammaglobulinemia was of a transient nature, and an adult with the acquired form of agammaglobulinemia, after an initial take, slowly rejected the alien skin transplant.

Metabolic Changes and Therapeutic Considerations in Bilateral Adrenalectomy. I. G. Graber and P. Beaconsfield. Brit. M. J. 2:704-708 (Sept. 17) 1955 [London, England].

There is a consensus that hyperactivity of the adrenal cortex is responsible for the metabolic changes produced by surgery and anesthesia. These changes include sodium retention, increased potassium excretion, high potassium/nitrogen ratio, and urine of low specific gravity. The superimposition of bilateral adrenalectomy on a surgical procedure would thus produce further problems and difficulties in the body economy. From this point of view, three consecutive patients with carcinoma of the breast and widespread metastases were studied for three days before they underwent simultaneous bilateral adrenalectomy and oophorectomy and for three weeks after the operation. Observations in these patients revealed postoperative changes similar to, but different in detail from, those found after surgery and anesthesia in patients who were not subjected to adrenalectomy. In the absence of adrenal glands, the metabolic changes effected by increased pituitary activity modified by cortisone therapy were sodium retention, a constant potassium excretion, low potassium/nitrogen ratio, and urine of high specific gravity. Surgical patients other than those undergoing bilateral adrenalectomy enter a phase of diuresis after the period of sodium retention and then return to a normal preoperative pattern. The patients who were subjected to adrenalectomy also went through a postoperative period of sodium retention, but this was followed by a period of permanent sodium diuresis. In the early phase of this latter period the percentage excretion of water, sodium, and potassium tended to remain slightly below the preoperative level. The potassium/nitrogen ratio was well below the preoperative level and the glomerular filtration rate was increased during this early phase of sodium diuresis. The late phase of sodium diuresis was characterized by an increase in the percentage excretion of water, sodium, and potassium equal to or above the preoperative figures, with a maintenance of the high glomerular filtration rate. The potassium/nitrogen ratio during this period rose to above the preoperative level and to values much higher than those found during the early phase of sodium diuresis. The patients who underwent adrenalectomy thus differ from other surgical patients in that no period of convalescence restores a normal hormonal balance. Instead, a state is reached that is reminiscent of adrenal cortical hypofunction (Addison's disease), modified by the administration of cortisone. The cortisone has the renal effect of increasing the glomerular filtration rate while maintaining the percentage excretion rate of water, sodium, and potassium above that of the earlier periods after ation. The use of desoxycorticosterone acetate is probably unnecessary in the immediate postoperative period and may even be harmful by prolonging the period of sodium and water retention. The use of desoxycorticosterone acetate or the newer fluorohydrocortisone may prove beneficial in the late diuretic phase. Patients who undergo adrenalectomy have an increase of antidiuretic substance in the blood; this substance is antagonistic to cortisone. Signs of adrenal insufficiency, low blood pressure, abdominal pain, and scanty urine with high specific gravity and low sodium content require increased cortisone therapy regardless of the maintenance dose.

The Treatment of Tuberculosis of the Spine by Evacuation of the Paravertebral Abscess and Curettage of the Vertebral Bodies. M. C. Wilkinson. J. Bone & Joint Surg. 37B:382-391 (Aug.) 1955 [London, England].

Fourteen children and 51 adult patients with tuberculosis of the spine without paraplegia were treated by evacuation of the paravertebral pus and curettage of the tuberculous focus in the vertebral body. This procedure, which is referred to as central curettage, was carried out safely with antibiotic cover. Nine of the 14 children had disease of the thoracic spine and 5 of the lumbar spine; 34 adults had disease in the midthoracic or lower thoracic region; and 17 had disease in the lumbar region. Patients were selected for operation mainly because the prognosis without surgical intervention seemed doubtful or poor. The patients were followed up for from one to five years after the operation. Of the 65 patients, 60 are at home and well and most of them engaged in their normal activities. Of 51 (78%) who have a stable and comfortable spine, 36 have bony ankylosis of the affected spinal segments, 4 have re-formed vertebral bodies, and 11 have firm fibrous ankylosis. The remaining 14 patients still have an unstable spine, though some of these are much improved. Relapses occurred in 10 patients who required readmission for further treatment. Six of these patients were among the earliest operated on, when the supply of streptomycin was scanty and when the operation was also sometimes inadequate. After further treatment, 5 of these 10 patients have recovered with solid ankylosis; one child is at home and well but has severe deformity; and 4 patients are still receiving treatment in hospital. There has been no death among the patients treated by central curettage. The duration of the treatment of these patients was considerably less than that formerly necessary. These results represent a considerable improvement over those hitherto reported.

Hypothermia in Surgery: Analysis of 100 Clinical Cases. H. Swan, R. W. Virtue, S. G. Blount Jr. and L. T. Kircher Jr. Ann. Surg. 142:382-400 (Sept.) 1955 [Philadelphia].

The authors review observations on 100 patients undergoing 105 operative procedures during general hypothermia. Direct vision intracardiac procedures were carried out in 59, closed intracardiac procedures in 21, and operations unrelated to heart disease in 20 patients. For achieving direct vision intracardiac operation, hypothermia is both safe and effective in congenital lesions that can be repaired by an approach through the right side of the heart, with occlusion times of 8 minutes or less at body temperatures not lower than 26 C (78.8 F). The mortality rises sharply when these limits are exceeded. The authors consider it the method of choice in the treatment of isolated valvular or infundibular pulmonary stenosis and of interatrial septal defect. The technique seemed favorable for the reduction of the operative risk in patients with congenital heart disease characterized by deep cyanosis or by hypertrophied overactive hearts. It may be less well tolerated or even of no benefit in the presence of strain on the left side of the heart. The technique is both effective and safe as a method of allowing temporary regional or organ ischemia to achieve a bloodless field. The patients with cirrhosis had pulmonary hypertension and hepatocellular dysfunction. Those with aneurysm were to have resection of thoracic or abdominal lesions. The cerebral lesions were either aneurysms of the internal carotid or hemangioma. In these, temporary occlusion of all blood flow to the head was performed intermittently by means of tapes around the vertebral and carotid arteries. The patients with visceral cancer required massive extirpative procedures. Acute hypothermia above 26 C appears to involve a low risk in human subjects, provided many precautions are observed. The authors found the effect of adequate ventilation so convincing that they subject all patients to deliberate hyperventilation throughout the cooling, operative, and warming periods. They also found that hypothermic anesthesia is a two *man job; one must constantly give undivided attention* to the maintenance of ventilation; to his associate go all the other multiple activities associated with modern anesthesia. Coronary air embolism has been one of the serious problems of open heart surgery. If air is trapped in the left side of the heart, it will almost surely find its way into the coronaries. The crux is to trap no air, and the authors describe the technique that they have devised to achieve this. Of the 22 deaths, 14 could possibly be related to hypothermia. Ventricular fibrillation and its sequels are the chief cause of death. The authors combat ventricular fibrillation as follows: Manual cardiac compression is continued until the myocardium is pink and of good tone. Electric defibrillation with metal electrodes delivering 170 volts and about 2.5 amperes for 0.1 or 0.05 seconds placed at the apex and over the base of the heart is tried next. Two or three shocks in fast succession are usually successful; if not, 3 to 5 ml. of potassium chloride solution is injected by coronary perfusion. If this chemical defibrillation is not successful, electric shock is repeated, after manual compression has dispelled myocardial cyanosis. If the heart become flabby with very fine fibrillations, adrenalin chloride can be injected into the left auricle, and, if this coarsens the fibrillation, the stage is set for successful electric defibrillation. The authors conclude that general hypothermia is of sufficient safety to warrant further use and evaluation.

NEUROLOGY & PSYCHIATRY

Immediate Prognosis in Cerebral Apoplexy. E. Skinhøj. Nord. med. 54:1313-1315 (Aug. 25) 1955 (In Danish) [Stockholm, Sweden].

Study of 1,000 cases of cerebral apoplexy at the neurological department of Frederiksberg Hospital showed no sex difference in the immediate prognosis in cerebral apoplexy. Lethality increases with increasing age, except that it is somewhat higher than expected in young patients. In these patients there are usually no relatively benign thromboses but considerably more dangerous hemorrhages, most often on the basis of a grave disease such as chronic nephritis with severe hypertension. The general state of health before cerebral apoplexy is surprisingly unimportant, and a preceding cerebral accident does not significantly lessen the chance of survival after repeated apoplexy. Conditions that decisively lessen the chance of survival are loss of consciousness, whether initial or later; hypothermia; pathological respiration, especially of Cheyne-Stokes type; respiratory or cardiac insufficiency expressed by cyanosis; and, first and foremost, terminal hyperpyrexia. Less than one-fifth of the patients who improve in the first 24 hours die and only about one-fourth of those die whose condition is not directly aggravated at this time. With the exception of terminal hyperpyrexia, there is no symptom that carries an unconditional sentence of death.

Causes of Death in Cerebral Apoplexy. T. Lyager. Nord. med. 54:1315-1317 (Aug. 25) 1955 (In Danish) [Stockholm, Sweden].

Of 1,000 patients with cerebral apoplexy at the neurological department of Frederiksberg Hospital, 443 died. Comparison of the anatomic changes and the case records shows that 224 patients, or 68% of 331 patients, died as a direct result of the apoplexy: 156 had cerebral hemorrhage and 68, thromboembolism in the brain. In 107 patients, the primary or complicating extracerebral affections were so grave that they must be considered the direct cause of death. Thromboembolism in extracerebral vessels, found in 71 patients, is regarded as the direct cause of death in 50. The fact that 42% of the 156 who died from cerebral hemorrhage and only 18% of the 68 who died from thromboembolism died on the first day after admission might suggest that cerebral hemorrhage has a more violent course. The apparently marked tendency to thromboembolism may testify for increased application of anticoagulants in cerebral apoplexy. Of the 22 cases of death from pneumonia, only three deaths occurred after January, 1948, which is attributed largely to treatment with antibiotics and also to the steadily increasing treatment directed against disturbances in the respiratory passages.

Hypophysectomy in Man: Further Experiences in Severe Diabetes Mellitus. R. Luft, H. Olivecrona, D. Ikkos and others. Brit. M. J. 2:752-756 (Sept. 24) 1955 [London, England].

Hypophysectomy was performed in 10 men and 10 women with diabetes mellitus of 13 to 22 years' duration and diabetic vascular complications that had been diagnosed one to seven years earlier. The aim of the surgical intervention was to eliminate those anterior pituitary factors that animal experiments have shown to have a diabetogenic action. All patients had diabetic retinopathy; blood pressure was generally raised; and albuminuria and proteinuria were present. Seven patients died within one day to 19 months of the operation. The surviving patients were followed up for 3 to 43 months. Substitution therapy consisted of the administration of thyroxin, estrogens and androgens, and adrenocortical hormone or desoxycorticosterone acetate. Women were placed on a diet containing 1,400 to 1,700 calories daily and men on one containing 1,600 to 2,000 calories. The patients were given a daily maintenance dose of 8 to 24 units of long-acting insulin. In the surviving patients, hypophysectomy was followed by a fall in blood pressure and a decrease in heart volume. In patients who had calcification of peripheral vessels before the operation, this condition was not affected, but no calcification occurred postoperatively in other patients. Capillary fragility was normal after the operation in all patients except one. A definite decrease in albuminuria and in glomerular filtration was achieved with the operation, but the effective renal plasma flow remained unchanged. These observations can be taken as a sign of a lowering of tonus of the vessels of the glomeruli, which in turn can be considered as a favorable effect of the operation on the renal circulation. No signs of progression of the renal disease were observed, though the authors' findings did not permit any conclusions as to improvement in the condition of the kidneys. The visual capacity improved in some patients and the retinal changes did not progress. The limited period of observation and the small number of patients do not permit conclusions as to the therapeutic value of hypophysectomy for the vascular complications of diabetes mellitus, but results obtained so far are encouraging.

Safeguards in Angiography. A. Ver Brugghen. J. Internat. Coll. Surgeons 24:310-315 (Sept.) 1955 [Chicago].

While it is conceded that cerebral angiographic examination is a valuable diagnostic tool, it admittedly causes serious complications such as transient or permanent hemiplegia, the decerebrate state, and even death. Complications have ranged from 3 to 10% and the mortality rate from 0.2 to 3.5%. The author feels that these high rates no longer occur today. He has had little trouble with cerebral angiographic studies. He describes his method and the results he obtained with it in the first 150 angiograms taken at the Presbyterian Hospital in Chicago. Ninety per cent of these were done by the author himself, and 10% by residents. All of these patients were given 35% Diodrast, and so far there have been no untoward reactions. All studies were done with the patient under sodium Pentothal-oxygen anesthesia with an intratracheal tube. After transport from the anesthesia to the roentgen room, the patient's head was put on the Sanchez-Perez machine. The skin of the neck was prepared, and the common carotid artery was entered percutaneously between the sternum and the lower border of the thyroid cartilage. When a satisfactory jet of blood was obtained, a piece of polyethylene tubing, with Luer locks at both ends, was attached to the needle by the operating surgeon, while the nurse attached a 10 cc. glass syringe with Luer lock, a metal plunger, and rings for the fingers. The syringe was emptied as rapidly as possible of 8 to 10 cc. of 35% Diodrast. As the plunger neared the last third of the barrel, the order was given to start the series of plates. The Sanchez-Perez machine, which is a rapid plate changer, was set to take six plates in five seconds. The lateral view was made first, and, unless there was some special problem, anteroposterior views were not taken. Both lateral and anteroposterior views were taken in about half of the patients, that is, in those in whom a tumor was seen or strongly suspected. In a few cases arteriograms of the common carotid and vertebral arteries were combined on one side. Bilateral studies were made in only very few cases and were nearly always restricted to lateral views. No patient was given more than 20 cc. of 35% Diodrast on either side of the brain. If more than one injection is required, an interval of several minutes should be allowed. No untoward effects occurred in this series of 150 patients. While this may represent a lucky series, the author feels that an experienced, constant team will insure maximum efficiency.

Incidence of Infection Among Contacts of Poliomyelitis Cases. D. M. Horstmann, R. W. McCollum and A. D. Mascola. J. Clin. Invest. **34**:1573-1580 (Oct.) 1955 [New York].

The apparently erratic spread of poliomyelitis with rarely more than one case in a family puzzled the early investigators, but later it became apparent that the majority of infections with poliomyelitis virus were mild or inapparent and, therefore, went undetected. With the introduction of tissue culture techniques into poliomyelitis research, it has become possible to carry out more extensive virological studies and to relate virus isolation or its absence to the immune or antibody status of the persons tested. The studies described were carried out during a poliomyelitis epidemic in two rural counties in which the over-all attack rates were 193 and 280 per 100,000, respectively, with mortality rates of 16 and 8.2 per 100,000. As soon as possible after a patient with poliomyelitis was hospitalized or reported to the health officer, inquiries were made among the family members and neighborhood contacts. Of the 91 contacts with which this report is concerned, 54 were household contacts and 37 were daily contacts, the latter being playmates or close neighbors of the poliomyelitis patients. Virus isolations as a measure of infection were correlated with immune status, that is, the presence or absence of antibodies. If only antibody negative (and therefore presumably susceptible) contacts are considered, the infection rates for those under 15 years of age were 100% for household contacts and 87% for daily contacts. The epidemic was due to type 1 virus, and type 1 virus was isolated with greater frequency from those with symptoms than from those who remained asymptomatic. Many of the asymptomatic group were demonstrated to possess antibodies to the family type of virus; when these were eliminated, there was no significant difference in the ease of virus isolation from individuals with symptoms as compared with those who remained asymptomatic. In analyzing the clinical response to poliomyelitis virus infection among family associates of patients, it was found that the ratio of inapparent to apparent infection was approximately 3:1 (and not higher than 7:1). It is suggested that the high incidence of apparent infections in the group studied (compared with the ratio for the general population) might be related, in part at least, to factors of exposure and dosage: in a family of a patient, exposure is of a high degree, the dosage of virus is presumably large, and the incidence of paralytic and nonparalytic infections is correspondingly high. On the basis of virus isolations and serologic evidence, poliomyelitis infection may be said to be as contagious as measles among susceptible persons in a family setting.

A New Method of Activation of the Electroencephalogram: Scalp Electrical Stimulation (SES). M. Gozzano, L. Sinisi, G. Tonini and R. Vizioli. Electroencephalog. & Clin. Neurophysiol. **7**:407-414 (Aug.) 1955 [Montreal, Canada].

A new method of electroencephalographic activation, scalp electrical stimulation, is described. It consists of the application to the scalp of rectangular pulses of low voltage and high frequency. It was found that this method increases the recording of electrical abnormalities, particularly in patients with intracranial tumors. In such cases, the electrical stimulation of the scalp was of considerable help in localization. The stimulating current was well tolerated by the patients, and the results suggest that the method would be helpful in routine electroencephalography of intracranial tumors.

GYNECOLOGY & OBSTETRICS

Further Results Obtained in Treatment of Cancer of Cervix with Radiogold: A Progress Report. W. A. Allen, A. I. Sherman and A. N. Arneson. Am. J. Obst. & Gynec. **70**:786-790 (Oct.) 1955 [St. Louis].

Allen and his associates began the use of radioactive gold for the irradiation of the parametrium in carcinoma of the cervix five and one-half years ago. A year ago they reported the results obtained with radioactive gold and compared these results with those obtained by roentgen and radium rays in the years from 1950 to 1953 inclusive. The present report is concerned with the same patients, plus those treated during 1954. Initially, only patients who were good operative risks and had stage 1 lesions were treated with radioactive gold, the treatment consisting of the parametrial injection of gold followed by radical Wertheim hysterectomy and pelvic lymphadenectomy. Later, poor operative risks were treated with only radiogold and radium. In the original group of 100 patients with stage 1 and stage 2 lesions, there were only 30 patients who were not subjected to a radical hysterectomy. Of the 49 stage 1 and 2 patients treated with radiogold during 1954, only 21 were subjected to operation, the remaining 28 being treated with only radiogold and radium. No stage 3 patients have been operated on as yet. Radium has been used in virtually all stage 1, 2, and 3 lesions. Patients subjected to operation generally received less than 5,000 mg.-hr. of radium, whereas those not operated on were given from 6,000 to 8,000 mg.-hr. The amount of radiogold injected was usually 100 to 130 mc. divided equally between the two sides. The results obtained are described and discussed, but the authors arrive at no definite conclusion, except that they seemingly obtained better results in patients treated with radiogold than in patients treated during the same period with roentgen rays and radium or in patients treated prior to this study with roentgen rays and radium.

The Significance of Basal-Cell Hyperactivity in Cervical Biopsies. G. A. Galvin, H. W. Jones and R. W. Te Linde. Am. J. Obst. & Gynec. **70**:808-821 (Oct.) 1955 [St. Louis].

The term basal cell hyperactivity is one of several that have been applied to the epithelial aberrations in the uterine cervix, which, while not manifestly benign, yet do not satisfy the criteria of malignancy. The term is used for that histological picture in which the epithelial layer approximates in thickness that of the normal portio vaginalis and in which there is an abnormal number of immature cells so that normal stratification is interfered with and normal architecture is partially destroyed. There are various degrees of epithelial deviation, depending upon the number and anaplasia of the immature cells and varying from slight alteration in the normal surface epithelium to a picture simulating carcinoma in situ. To facilitate classification and comparison, the authors arbitrarily divided basal cell hyperactivity into three stages, in which stage 1 shows only slight divergence from the normal epithelial layer, stage 2 represents more conspicuous changes, and stage 3 approaches the microscopic picture of surface carcinoma. The material for this investigation was assembled from the gynecologic outpatient clinic of the Johns Hopkins Hospital during the four-year period terminating in December, 1954. Cervical biopsies, although obtained quite freely, were not routinely taken but were obtained only when signs or symptoms aroused suspicion of cervical abnormality. Initially, 343 patients with a diagnosis of basal cell hyperactivity were referred to the authors for further study. The review of the original biopsies disclosed that the histological changes in 101 were insufficient to justify such a diagnosis, in 20 the changes were those of carcinoma in situ, and in 7 there was actual invasion of the stroma by malignant cells. These cases, as well as an additional 24 in which the follow-up investigation was inadequate, were excluded, and there remained 191 patients for study. The authors arrive at the following conclusions: 1. Basal cell hyperactivity, when found in cervical biopsies, requires more thorough investigation of the cervix, as carcinoma in situ will be found eventually in a substantial number of these cases. Noninvasive cancer was found in 33, or 17%, of the 191 patients investigated. 2. The probability of this eventuality increases sharply with the degree of basal cell hyperactivity. While only 2% of patients classified as having stage 1 basal cell hyperactivity were eventually proved to have carcinoma in situ, 65% of those in stage 3 finally showed this histological picture. 3. Evaluation of a selected group of 11 of the patients seems to indicate that basal cell hyperactivity may progress to carcinoma in situ. 4. Complete regression of even a marked degree of basal cell hyperactivity represents a warning that this condition must be differentiated from carcinoma in situ and must never be diagnosed or treated as such.

An Experimental Program with Colposcopy. L. C. Scheffey, W. R. Lang and G. Tatarian. Am. J. Obst. & Gynec. 70:876-888 (Oct.) 1955 [St. Louis].

The principle of colposcopy consists of stereoscopic visualization of the cervix under magnification with direct lighting. Changes in the cells and cellular architecture of the surface epithelium are detectable with surface enlargement. The colposcope used magnifies 10 and 20 times. It is a binocular instrument mounted on an adjustable stand with a transformer in the base. By means of a side lever, magnification can be changed from 10 to 20 times without refocusing. When correctly placed, the colposcope "looks" at right angles upon the surface of the cervix previously exposed by a speculum. The instrument has at attachment for taking 35 mm. Kodachrome pictures. This is an excellent method of securing a permanent record of normal and abnormal findings. The authors have used the instrument for 450 colposcopic examinations. They first insert the speculum with the patient in the usual lithotomy position and then adjust the colposcope. The cervix is viewed first as is; then after gentle cleansing; next after the application of 3% aqueous solution of acetic acid the better to delineate detail; and, last, aqueous iodine (Schiller test) is applied. After the authors had become familiar with the normal cervix under the magnifying colposcope, they began work on patients referred from the gynecologic and obstetric clinics because of clinical abnormalities or an unusual cytological report. Their impressions are based on observations on 168 patients studied during the last year. Fifteen of these had squamous cell carcinoma; 7 had recurrent or unarrested lesions; lesions that proved benign on histological examination were observed in 23; and the remaining 123 patients also had benign lesions. While colposcopy will never replace the fundamental means of diagnosing cervical cancer, that is, history, pelvic examination, cytological smear, biopsy, and fractional curettage, it is of value as an accessory method in the early diagnosis of cervical cancer. The Papanicolaou smear technique should be used in connection with the procedure, for it will point to specific areas for biopsies, but it will never replace the latter for the definitive diagnosis upon which therapy depends. Neither can colposcopy eliminate circular or cone biopsies for microscopic study of all areas when this is clinically indicated. The authors did not diagnose a single malignancy with the colposcope alone. They became greatly impressed with the educational advantages of the instrument. The excellent color photographs made possible by the instrument have added much to the visual education of students and of the house and attending staffs.

Diverticulosis of the Fallopian Tubes: A Clinical and Roentgenologic Study. A. M. Siegler. Fertil. & Steril. 6:432-442 (Sept.-Oct.) 1955 [New York].

During 1941 to 1953, a total of 1,160 hysterosalpingograms were performed on women complaining of infertility. A diagnosis of tubal diverticulosis was made in 19 patients, an incidence of 1.6%. The ages of these 19 patients ranged from 24 to 43 years. Only three of these women had had normal pregnancies prior to investigation for infertility. There had been 11 spontaneous abortions and 2 tubal pregnancies. Tubal diverticulosis was associated with endometriosis in two patients, pelvic inflammatory disease in two, myoma of the uterus in eight, cervical stenosis in three, and retrodisplaced uterus in two patients. Dysmenorrhea was present in eight of the women. Diverticulosis may be suspected in a woman in the fourth decade of life who has a history of unexplained involuntary sterility of five years or over, no previous pelvic inflammatory disease, no palpable adnexal masses, and no increase in temperature or sedimentation rate. Endometrial biopsy should not be suggestive of tuberculosis. The diagnosis of tubal diverticulosis was made primarily by salpingography. The diverticula were found chiefly in the isthmic, isthmoampullary, and isthmocornual regions of the tubes, and they were usually multiple, resembling the branches of a tree. There was a significant inconsistency in the results of tubal insufflation and of hysterosalpingography; diverticula are not revealed by tubal insufflation. If tubal diverticulosis is discovered incidentally at laparotomy and the tubes are grossly normal, they should not be operated on. A woman who has a long-standing history of infertility with bilateral isthmic occlusion due to diverticulosis might be a candidate for reconstructive surgery; reimplantation might be attempted. Preoperative culdoscopic examination might be helpful in the selection of the patient likely to benefit from tubal plastic surgery.

Hormonal Therapy in Gynecology. J. E. Hall. Connecticut M. J. 19:723-726 (Sept.) 1955 [New Haven, Conn.].

The use of hormones is often abused in gynecology as in other branches of medicine. Hormones are not miracle substances, but each hormone has specific actions and these should be known before it is administered. Certain gynecologic disturbances may be helped by the use of the right hormone in proper dosage, but hormones are of little value in many conditions for which they have been employed. Harmful results may follow their improper use. However, if the proper substance is employed, the hormones will prove of value in many gynecologic problems. Thus estrogens are helpful in the menopause, atrophic vaginitis, and the suppression of lactation but are of questionable value in dysfunctional uterine bleeding, amenorrhea, dysmenorrhea, endometriosis, and malignant states. Progesterone may be effective when the corpus luteum of pregnancy is surgically removed and of questionable value in dysfunctional uterine bleeding, amenorrhea, corpus luteum deficiency, and dysmenorrhea. The androgens are helpful in treating the menopausal symptoms, when estrogens are contraindicated, and in the suppression of lactation. Their value is questionable in treating frigidity and malignancy. Gonadotropins have no proved value in gynecologic problems. Thyroid is effective in menstrual abnormalities that are associated with deficient function of the thyroid. Cortisone may be of value in treating certain specific menstrual disturbances due to deficiency of the follicular phase of the menstrual cycle and may also serve as an adjunct in treating advanced malignancy.

Maternal Rubella: Results Following an Epidemic. D. L. Brawner. J. M. A. Georgia 44:451-454 (Sept.) 1955 [Atlanta, Ga.].

Twenty-six pregnant women contracted rubella in the course of an epidemic of rubella, which occurred in the spring of 1952 in Chatham County, Georgia. Twenty-two of these women were followed to the end of gestation, and therapeutic abortion was done in four women. Rubella was diagnosed by history alone in 5 cases and on the basis of an examination by a physician in the other 21 cases. In seven women the rubella occurred during the first eight weeks of gestation; three of these gave birth to normal infants; three infants showed anomalies, and one infant was stillborn at seven months. Of the three with anomalies, one had congenital heart disease and multiple facial anomalies; another had harelip, cleft palate, and congenital heart disease; and one had bilateral cataracts. Of the eight women who had the rubella between the eighth and the twelfth week of gestation, one gave birth to a child with harelip and cleft palate and the other seven women gave birth to normal infants. There were mild abnormalities in the infants of two of the five women in whom the rubella occurred during the second trimester, but the nature and mildness of these defects make it doubtful that the rubella played a causal role in their development. The infants of the two women who were in the last trimester of pregnancy during their attack of rubella were free from anomalies. These cases of maternal rubella indicate that the first eight weeks of pregnancy is the crucial period in which rubella may cause serious fetal damage.

PEDIATRICS

Narcosis and the Fetal Brain. C. B. Courville. Bull. Los Angeles Neurol. Soc. **20**:97-101 (Sept.) 1955 [Los Angeles, Cal.].

The introduction of anesthesia into obstetrics has been hailed as a great advance in medicine, but a more critical evaluation of the effects of analgesic and anesthetic drugs on the fetus casts some doubt on this conclusion. It has been learned that all pharmaceutical agents that have a narcotic effect inevitably depress the fetal respiratory center, usually in excess of that of the mother. The well-being of the fetus, whose intrauterine existence is maintained in a state of relative anoxemia, a state that is accentuated during the process of delivery, is thereby placed in jeopardy. Should the narcotic agent be used in excess or should some concomitant exist which also favors the development of anoxemia, the sum total of all contributing factors may result in a disaster. Although body tissues as a whole tolerate quite well even a fairly severe degree of anoxemia without serious damage, it is quite a different matter with the immature and unduly vulnerable tissues of the fetal brain, notably the cerebral gray matter. Even a transitory insult, although obscured for the time being by the fact that breathing was soon established, may indelibly stamp its mark upon the infant's brain. This purely narcotic depression is rarely severe enough to result in the death of the infant. It seems reasonable to conclude, however, that the effects of narcosis on the fetal brain resulting in postnatal apnea may be responsible in some cases for at least the lesser degrees of motor disability, mental deficiency, and epilepsy. In some cases it may also be a contributing factor in the production of the gross motor syndromes observed in cases of cerebral palsy. It is true that these complications of obstetric narcosis are relatively rare, but every preventable case is a tragedy to the victim and his family.

Cerebral Palsy: Where Next? R. V. Fuldner. A.M.A. Arch. Neurol. & Psych. **74**:267-279 (Sept.) 1955 [Chicago].

The birth and maternal gestational records of 204 children with athetoid quadriplegia, spastic quadriplegia, spastic hemiplegia, or spastic paraplegia were reviewed. No abnormal findings with regard to pregnancy, labor, or the respiratory status of the newborn infants were recorded in 70 cases. The cause of cerebral palsy in many of the 134 tabulated cases was quite evidently fetal oxygen deprivation. It appears that hypoxia provided a common basis for the varying mechanisms of cord entanglement, dystocia, premature placental separation, and delayed onset of respiration to produce brain damage. Other causes of brain damage, such as bilirubinemia and maternal illness, were relatively infrequent. There was almost no evidence to support the concept of cerebral palsy's being the result of a heredofamilial defect. At least 103 cases, or more than half the total, seem to have been anoxic in origin, and, since data supplied by many hospital records are inadequate, the incidence of fetal anoxia is probably higher than this figure suggests. The quantitative aspects of hypoxia must be considered in any evaluation of its pathogenic capacity. Keith's follow-up studies on infants with asphyxia or delayed respiration included only one patient in whom the period of apnea is stated to have been in excess of 15 minutes. It now turns out that the period of apnea in cerebral palsy, where stated, tends to higher levels. The lethal potentiality of prolonged hypoxia with respect to the cerebral neurone was recently demonstrated by the case of a boy with spastic quadriplegia commencing after his imprisonment, at the age of 3, in an unused icebox for seven hours with minimal ventilation. A pet kitten that also underwent the experience died a week after their release, and autopsy showed complete destruction of the cerebral cortex. The goal in the treatment of cerebral palsy must eventually be prevention. A clearer understanding of the mechanisms of neonatal asphyxia needs to be gained by controlled studies of infants with complicated deliveries. It is essential that further data be obtained from a representative variety of obstetric sources and that follow-up procedures provide for accurate diagnosis of the children under investigation.

Interstitial Plasma Cell Pneumonia in Premature Infants. H. Laursen. Nord. med. **54**:1285-1288 (Aug. 18) 1955 (In Danish) [Copenhagen, Denmark].

Interstitial plasma cell pneumonia is practically always without symptoms till late in the course. The disease affects only premature and debilitated infants and occurs mainly from the sixth week to the fourth month of life. The typical symptoms are marked tachypnea, dyspnea, and cyanosis. Auscultatory changes are slight. The temperature is usually normal and may be subnormal. Roentgenologically there is diffuse infiltration in both lungs. According to the literature, the mortality is from 22% to 90%. In one of the three cases reported by the author, the patient survived. Autopsy in the other two cases showed typical pathognomonic changes. Histological examination of pulmonary tissue revealed structures corresponding to the pneumocystitis carnii described by Vaněk and Jírovec. Drugs such as Atebrin and Plasmochin can be effective in plasma cell pneumonia; the usual chemotherapeutics are without avail. The incubation period is thought to be about one month. Infection is assumed to be either peroral through food contaminated from the sputum or feces of animals (insects may also transmit the infection) or through inhalation of pneumocysts from dust or adult carriers. The best prophylaxis is isolation of the sick children and children who have been exposed to infection.

New Treatment of Infantile Enuresis with Antispasmodics and Vitamin E. S. Gianolla. Minerva pediat. **7**:756-759 (June 30) 1955 (In Italian) [Turin, Italy].

Biaxin, a combination of vitamin E, diethylstilbestrol, a derivative of glyceryl trinitrate, and testosterone, was used in the treatment of 19 boys with severe enuresis that had not responded to previous treatments. The patients, whose age ranged from 10 to 16 years, were chosen from the 350 boys living at the Don Bosco Boys' Village in Rome. It was ascertained that the disturbance had not appeared in these boys as the consequence of disease, surgical intervention, or severe trauma. Hyperexcitability was observed in 13, dermographia in all 19, hyperreflexia in 15, slight disturbances of the cardiac rhythm in 3, and cystitis in 4. Alterations in the tonus and movements of muscles and joints, renal disease, spina bifida, or sacralization of the fifth lumbar vertebra were not present. The boys were given 20 drops of Biaxin in the morning when they arose, at 5 p. m., and again at 8:30 p. m. when they went to bed. A 10 to 12 day treatment period gave good results in some boys; for others the therapy had to be continued for as long as 20 days. Recovery was obtained in 95% of the patients; 13 of them ceased to urinate at night after two or three days of treatment. The general condition was improved in all the boys, who also became more confident in themselves and more interested in their environment and in the social life at the Village. The only side-effect—slight enlargement of the breasts—disappeared a few days after the therapy was discontinued. At the time of writing, more than three months later, the good results were still present. In only one patient did the disturbance reappear occasionally.

DERMATOLOGY

Accidental Vaccinia. H. B. Ansell. J. Maine M. A. **46**:223-226 (Aug.) 1955 [Portland, Maine].

Three cases of accidental vaccinia are reported. The first patient was a woman who had an erythematous, papulovesicular, and pustular eruption involving the face, scalp, neck, breasts, antecubital and popliteal areas, and several fingers. The patient stated that her son had been vaccinated about two weeks before the onset of her illness. The eruption resembled smallpox, and while the involution was slow, there was practically no residual scarring after recovery. This patient, who had been vaccinated in childhood, had a history of eczema, asthma, and urticaria. The second patient stated that her baby had been vaccinated 11 days prior to the onset of her eruption. This patient had never been vaccinated, but she too had a history of eczema. Her lesions were diagnosed as multiple accidental vaccination. The third patient, a 4-year-old boy, had an eruption involving his lip and left elbow. He had sustained an abrasion of his left elbow the day before he was vaccinated in the left deltoid area. A week after the vaccination, he fell and injured his lower lip, and two days later his mother noticed the development of a lesion on the lip. A diagnosis of autovaccination of the left elbow and lower lip was made. Because of the symmetry and the extensive extent of the eruption in the first patient, the author believes that this was an example of hematogenous spread of the vaccinia virus. Case 2 is an example of surface inoculation in a susceptible person, and case 3 is considered as surface inoculation in a vaccinated individual who had sustained abrasions both prior to and subsequent to vaccination. Patients with skin lesions who have never been vaccinated or who have not been recently vaccinated should avoid contact with newly vaccinated persons.

Isonicotinic Acid Hydrazide in Treatment of Lupus Vulgaris. M. Bhattacharyya and L. M. Kakoti. Indian M. Gaz. 89:580-583 (Oct.) 1954 [Calcutta, India].

Two patients with lupus vulgaris were treated with daily doses of 200 mg. of isoniazid for a period of 12 weeks. The patients received the ordinary hospital diet and were permitted to move about as they pleased. One of the two patients, a 25-year-old man, achieved complete clearance of the lupus lesions, and the other patient, a 16-year-old girl, showed great improvement. Although observations on only two patients do not permit conclusions, the authors feel that, in a country where sunshine is plentiful, lupus vulgaris might be successfully managed with this simple treatment.

UROLOGY

Technique of Percutaneous Renal Biopsy in the Prone Position. R. C. Muehrcke, R. M. Kark and C. L. Pirani. J. Urol. 74:267-277 (Sept.) 1955 [Baltimore].

Since 1954, when the authors first reported on their new technique of percutaneous needle biopsy of the kidney with the patient in the prone position (J. A. M. A. 156:89 [Sept. 4] 1954), 153 biopsies have been done. The exact position of the kidney was found with the aid of an excretory urogram and a fine exploring needle. The biopsy specimen was taken with Franklin's modification of the Vim-Silverman needle. A sandbag under the abdomen pushed the kidney against the back and provided hemostasis through pressure after biopsy. Neither serious hemorrhage nor dissemination of infection occurred in the patients, aged 10 to 66 years, on whom the biopsies were performed. Biopsies were repeated on 10 patients, and 3 of these had three serial biopsies without adverse sequelae either from a functional or structural viewpoint. Kidney biopsy proved to be of great value by either correcting or confirming clinical diagnoses of renal disease. Exact pathological diagnoses were made providing the background for etiology, diagnosis, and prognosis. Kidney biopsy also was useful in obtaining cultures of organisms from the kidneys, in following the natural history of diseases involving the kidneys through serial biopsies, in discovering new diseases of the kidneys, in assessing the effects of drugs on renal and cardiovascular disease, in studying renal cytology and cytochemistry, in studying the morphology of the kidneys by the electron microscope, and in obtaining data that may clarify present concepts of the physiology and pathophysiology of the kidneys.

Nephrocalcinosis and the Acidity of the Urine. T. B. Reynolds. J. Urol. 74:257-266 (Sept.) 1955 [Baltimore].

Renal tubular acidosis is a condition that leads to chronic acidosis, potassium deficiency, bony dissolution, nephrocalcinosis, and stone formation. It is easily recognizable because of the abnormally high urine pH (around 6.5), which fails to drop when acid is ingested. Urinary tract infection with a urea-splitting organism as a cause of the abnormal pH can be ruled out by the low ammonium content of the urine. Though the fundamental renal tubular fault has not as yet been elucidated, the abnormal findings are explicable on the basis of chronic loss of body buffer salts. Oral treatment with an inexpensive mixture of 100 gm. each of sodium and potassium citrate per liter of water with syrup of orange as a flavoring agent (two teaspoonfuls three times daily) will have the following effects: relief of the systemic acidosis with restoration of normal blood biochemical values, and usually a sense of well-being; restoration of intracellular potassium stores, a normal serum potassium level, and relief of muscle weakness; termination of the process of bony dissolution with recalcification of bone and healing of pseudofractures; disappearance of hypercalcuria; and interruption of nephrocalcinosis and stone formation. Since the urine pH remains around 6.5, calcium excretion in the urine should be closely followed with the aid of Sulkowitch's test during the initial months of therapy while the bones are being reconstituted. When it is felt that this process is complete, a low-calcium diet should be adhered to, to minimize calcium excretion. Three illustrative cases are described in women between the ages of 19 and 48 years. Paralytic attacks secondary to potassium depletion are not uncommon in renal tubular acidosis and were observed in two of these patients. No further paralytic attacks occurred after the institution of the treatment with the mixure of sodium and potassium buffer salts. None of the patients were followed long enough to indicate whether any decrease in the nephrocalcinosis can be expected, but none of them had progression of their calcification nor any further stone passage.

Papillomas of Bladder: Analysis and After-Examination of 183 Cases. F. Lund and F. Lundvall. Ugesk. læger 117:1123-1131 (Aug. 25) 1955 (In Danish) [Copenhagen, Denmark].

From 1929 to 1952, 183 patients with papilloma of the bladder (147 men and 36 women, aged mostly between 60 and 70) were admitted in Bispebjerg Hospital. The average period of observation was 92 months for men and 113 months for women. The symptoms were hematuria, constant or intermittent, painful micturition, and pollakiuria. Six patients were not operated on, in 22 transurethral electrocoagulation alone was done, in 138 transurethral electrocoagulation and extirpation, and in 17 transvesical interventions were performed. The postoperative mortality was 4%. Most recurrences come in the first year. Recurrences after a symptom-free period of many years are not rare. The danger of malignant transformation is considerably greater with primary multiple papillomas than with solitary papilloma. Follow-up of 165 patients revealed recurrence in 43 out of the 125 with a solitary papilloma, in 7 as carcinoma; and in 29 of the 40 with multiple papillomas, in 8 as carcinoma. The cardinal symptom, hematuria, must never be neglected; other symptoms from the urinary tract may also indicate closer examination of the entire tract. The earlier the patients are treated, the better the prognosis as to both the total number of recurrences and the number of malignant recurrences. During the five-year period after operation, control every three months in the first year, twice during the second year, then once yearly is advised.

The Treatment of Tuberculous Infections of the Genitourinary Tract. J. K. Lattimer. J. Urol. 74:291-300 (Sept.) 1955 [Baltimore].

Chemotherapeutic treatment of tuberculosis of the genitourinary tract was practiced in 625 patients in the course of seven years. The authors emphasize that chemotherapeutic treatment of genitourinary tuberculosis should be continued for one uninterrupted year. They believe that the treatment should always consist of a combination of drugs. Combined treatment with two drugs (streptomycin and aminosalicylic acid) or three drugs (streptomycin, aminosalicylic acid, and isoniazid) was more effective than treatment with any one drug alone in converting positive urines to negative. Only time will tell whether prolonged mild chemotherapy with two drugs for two years may prove more effective than intensive chemotherapy with three drugs for one year, or whether one will find it best to use streptomycin and aminosalicylic acid for one year and isoniazid and aminosalicylic acid for a second year. At present a therapeutic trial is conducted with a combination which consists of 1 gm. of streptomycin twice a week, 100 mg. of isoniazid three times daily, and 5 gm. of sodium aminosalicylate three times daily. This program is continued for one year. The results so far obtained from this regimen are the best the authors have seen to date. Surgical interventions, such as partial nephrectomy, prostatectomy, and epididymectomy, are deferred more and more, because of the success of chemotherapy. The authors feel that any patient who does have an operation on the urinary tract because of tuberculosis should have chemotherapy for one year in addition to the operation, with four months of therapy preceding the operation and eight more months of treatment after the operation. Results so far obtained with chemotherapeutic treatment of tuberculosis of the genitourinary tract justify the statement that the prognosis of this formerly fatal disease has been definitely improved.

THERAPEUTICS

Problem of Bacterial Resistance in Antimicrobial Therapy of Tuberculosis. H. C. Sweany, F. P. Dunbar and E. Wood. Dis. Chest **29**:260-274 (Sept.) 1955 [Chicago].

Sweany and associates made a study to determine the time of emergence of resistance in a series of far-advanced cases of tuberculosis, which it was thought would remain positive for at least a year and in which resistance could be studied with various drug combinations, especially streptomycin and isoniazid; aminosalicylic acid and isoniazid; and aminosalicylic acid, isoniazid, and streptomycin. Out of a large number of cases, only 13 could be followed long enough to reveal any worthwhile information. In the other cases, the sputum turned negative before such information could be obtained. Another object was to find out, if possible, the combination of drugs that gives the best and most lasting therapeutic effect as well as the combination that delays the emergence of resistance the longest. The preliminary aims have not been completely realized, but a few trends have been observed that may be of some use in the administration of future drug regimens. Reports made in the past indicate that resistance develops to isoniazid within one and a half to three months. The resistance to streptomycin has been reported to develop in two to four months in about 70% of the cases when used alone. Resistance to aminosalicylic acid when used alone has been reported to develop in about 50% of the cases within three to four months. By combining the three drugs in different combinations emergence of resistance is delayed, owing to what is thought to be a double mutation, which is found to be much rarer than the mutants resistant to the drugs individually. Accordingly, streptomycin and isoniazid together prolonged the emergence of resistance at least to twice the time of either of the drugs alone, sometimes much longer. Streptomycin and aminosalicylic acid together prolong the time of the emergence of resistance severalfold. Aminosalicylic acid and isoniazid also prolong the development of resistance much longer than when the respective drugs are used separately, and even longer than any other combination studied. From the meager data at hand the combination of the three drugs together does not seem to offer any advantages not possessed by the various two-drug combinations. Furthermore, there is the advantage of having a potent drug available if resistance should develop to any two. A plan of treatment has been suggested that would use streptomycin and isoniazid in critical or panic cases; streptomycin and aminosalicylic acid in ordinary pulmonary tuberculosis and ordinary complications; and isoniazid and aminosalicylic acid where resistance has developed for streptomycin.

The Toxic Effects of Phenylbutazone (Butazolidin): Review of the Literature and Report of the Twenty-Third Death Following Its Use. E. F. Mauer. New England J. Med. **253**:404-410 (Sept. 8) 1955 [Boston].

The twenty-third death following the use of phenylbutazone, a drug resembling aminopyrine in chemical structure, is reported. The patient was a 48-year-old woman, who had taken 35 tablets, 100 mg. each, of phenylbutazone over a period of 22 days because of a painful knee. At this time a rash appeared; her physician discontinued the drug and gave an injection of corticotropin (ACTH). Despite the prompt withdrawal of the drug, nausea, vomiting, burning in the mouth with difficulty in swallowing, and generalized aching appeared. When the woman was hospitalized, her temperature was 100.4 F (38 C), and there was a diffuse, blotchy, red rash and epigastric tenderness. Abdominal pain increased, and, when rigidity of the upper abdomen developed, laparotomy was performed, which revealed an acute duodenal ulcer. The rash became purpuric, and other signs of capillary fragility were related to reduction in prothrombin level, which did not respond to the administration of fresh blood and vitamins K and K_1. On the 8th hospital day, blood smears yielded evidence of bone-marrow involvement; on the 10th day, there was jaundice, and severe intractable diarrhea began; and by the 12th day, the skin had begun to exfoliate. During the last 10 days of life the exfoliation involved the entire face, the neck, the thorax, and all extremities. The temperature was generally 100 to 103 F (37.7 to 39.4 C), but on the 22nd hospital day it suddenly went over 108 F (42.2 C). The patient became comatose and died 2 days later, 28 days after the first sign of toxic reaction following the phenylbutazone therapy. Death was due to an acute necrotizing process, which involved the skin, causing exfoliative dermatitis; the liver, leading to diffuse toxic hepatitis; and the colon, causing mucosal necrosis and superficial ulceration. Similar lesions were present in the vagina, urinary bladder, and elsewhere in the intestinal tract. The literature concerning the toxicity of phenylbutazone shows that the serious reactions are not related to dosage or duration of treatment. They may occur after the drug has been withdrawn. There are no known methods of predicting an impending reaction. At present there are no specific means of treating reactions. In advertisements, phenylbutazone has been recommended for gouty arthritis, rheumatoid arthritis, osteoarthritis, psoriatic arthritis, spondylitis, fibrositis, bursitis, scapulohumeral periarthritis, myositis, neuralgia, and sciatica. If the drug had curative powers in any of these conditions, a risk might be justified, but phenylbutazone is only an analgesic somewhat similar to the abandoned aminopyrine.

Anaphylactoid Shock Due to Penicillin. H. Cruz Hernández and C. R. Rosa-Febles. Bol. Asoc. méd. Puerto Rico **47**:323-326 (Aug.) 1955 (In Spanish) [Santurce, Puerto Rico].

Anaphylactoid shock secondary to an injection of penicillin, or to local use of the antibiotic is a grave and often fatal condition, more frequent than is believed. Symptoms of shock with cyanosis, dyspnea, pulmonary edema, urticaria, angioedema, stupor, and convulsions appear shortly after use of the antibiotic and follow a rapidly acute course. The patients are critically ill. The therapy consists of the use of epinephrine, oxygen, antihistamine drugs, and administration of a 5% dextrose solution intravenously. General measures include warmth and posture of the patient. A case of acute course with recovery of the patient with the aforementioned treatment is reported.

Gangrene of Arm Following Accidental Intra-Arterial Injection of Somnifene (Barbital Preparation) in Violent Mental Patients. E. Arruda. Hospital **48**:209-224 (Aug.) 1955 (In Portuguese) [Rio de Janeiro, Brazil].

Four cases of dry gangrene of the arm following accidental intra-arterial injection of Somnifene (a barbital preparation) are reported. The patients were given an injection of Somnifene into the arm when they were admitted to the hospital as mental cases in a state of violent agitation. Intravenous injection was intended. On the morning following administration of the injection, the patients exhibited loss of use of the arm. An irreversible syndrome of arteritis obliterans, with acute pain, edema, local hyperthermia, and cyanosis, rapidly progressed into dry gangrene that made amputation of the arm necessary. A histological study was made on portions of arteries, veins, and muscles taken from the amputated arm of one of the patients. The veins were normal. A diagnosis of endarteritis and infiltrative exudative myositis was made. The author was able to reproduce this circulatory syndrome in monkeys that had an injection of Somnifene into the axillary artery.

First Clinical Trials with Prednisone (Metacortandracin or Meticorten). G. Bickel. Schweiz. med. Wchnschr. 85:859-861 (Sept. 3) 1955 (In French) [Basel, Switzerland].

Prednisone (Meticorten) was given a therapeutic trial in 13 patients, 9 of whom had chronic rheumatoid arthritis, 3 had bronchial asthma, and 1 had lipid nephrosis. The total dose of the drug administered varied from 120 to 2,415 mg., and the duration of treatment varied from 8 to 140 days. In contrast to other workers, the author considers a massive daily dose of from 20 to 25 mg. of prednisone, instead of one of 30 to 50 mg., given in four divided doses, as sufficient for patients with rheumatoid arthritis who previously were treated with cortisone. This dose may be reduced gradually to one of 15 to 20 mg. daily. A daily dose of 20 mg. was sufficient for the control of bronchial asthma in two patients who had been treated previously with a daily dose of 80 to 100 mg. of cortisone. In a third patient with bronchial asthma who was not treated previously with cortisone, a massive dose of 60 mg. of prednisone was given for two days, 40 mg. were given for four days, and then 20 mg. daily. Results obtained in these patients with rheumatoid arthritis and bronchial asthma suggest that the antiinflammatory and antiallergic action of prednisone is definitely superior to that of cortisone and hydrocortisone. Prednisone was effective in patients in whom cortisone was ineffective or had lost its effectiveness in the course of prolonged treatment. The undesirable side-effects resulting from prednisone were less pronounced than those resulting from cortisone, and they occurred less frequently after prednisone administration than after cortisone therapy; this applies particularly to the retention of water and sodium, thus permitting, as a rule, administration of prednisone without placing the patient on a salt-free diet. Prednisone, however, is not an "inoffensive cortisone," since, on the 45th day of treatment with a daily dose of 15 mg. of prednisone, a severe digestive disturbance with hematemesis occurred without any warning symptom in a 68-year-old patient with rheumatoid arthritis of 25 years' duration who had been treated with cortisone for four years without any digestive disturbance. Gastralgia developed in one-third of the author's other patients. The appearance of peptic ulcer and recurrences of ulcer were reported by other workers. The favorable end, as a rule, striking initial effect of the drug became less pronounced as treatment continued, thus requiring higher doses with a greater risk of undesirable side-effects. Prednisone did not prove to be superior to corticotropin (ACTH) or cortisone in the patient with lipid nephrosis who was given an initial daily dose of 80 mg. of prednisone, which was rapidly decreased to 30 mg. and later on to 20 mg.

Antibiotic Products of a Versatile Fungus. H. W. Florey. Ann. Int. Med. 43:480-490 (Sept.) 1955 [Lancaster, Pa.].

Florey says that a fungus producing an antibiotic had been isolated by Brotzu at Cagliari in 1945, while he had been looking for antibiotic-producing micro-organisms in the sea near a place where there was an outflow of sewage, his idea being that possibly in this neighborhood organisms antagonistic to those in sewage might be developed. Brotzu grew the fungus on agar and showed that it produced an antibiotic active against a number of pathogenic bacteria. He considered the organism to be Cephalosporium acremonium. He grew the fungus on a liquid medium, into which it secreted the antibiotic, which he endeavored to separate. He made an active, though impure, extract, which, together with culture fluid, was used for the parenteral treatment of patients suffering from typhoid and from infection with Brucella melitensis. The preparations were also used for local application. In 1948 associates of Florey in Britain began study on the Cephalosporium isolated by Brotzu. It was found that the Cephalosporium fished out of the sea by Brotzu produces a variety of antibiotics. One of them, cephalosporin P, though inferior to several antibiotics, might conceivably be valuable in combating staphylococcic infection, although it has not yet been so tried in man. A second is a new kind of penicillin, of which some physical, chemical, and biological properties are substantially different from those described for any other penicillin. It is conceivable that it may be useful for the treatment of typhoid and in patients sensitive to penicillin G. It offers possibilities for the manipulation of the penicillin molecule for the production of other antibiotically active substances. There has also been isolated an antibiotic, cephalosporin C, which is possibly related in some ways to penicillin. It has, however, quite different physical and chemical properties and may have an application in medicine especially for the treatment of staphylococcic infections resistant to other antibiotics.

The Influence of Chemotherapy on Survival in Acute Leukemia. A. Haut, S. J. Altman, G. E. Cartwright and M. M. Wintrobe. Blood 10:875-895 (Sept.) 1955 [New York].

One measure of the effectiveness of therapy in the treatment of acute leukemia is its influence on longevity. The median survival was calculated for 103 of the 142 patients (children and adults) seen at the University of Utah College of Medicine from March, 1947, to March, 1954, and for 782 patients reported on in the literature. The records of all 142 patients seen at the authors' clinic were reviewed; in some cases, however, they were inadequate and had to be excluded largely because geographical considerations made it inconvenient for the patients to continue their attendance at the clinic. Another eight patients were excluded from the calculations because they had received inadequate trials of treatment, i. e., less than 10 days with folic acid antagonists, less than 7 days each with corticotropin (ACTH) and cortisone, and less than 14 days with 6-mercaptopurine. Patients who received x-ray, nitrogen mustard, urethan, Myleran, or radioactive phosphorus ("nonstandard therapy") or folic acid antagonists, corticotropin, cortisone, or 6-mercaptopurine ("newer therapies") in any amounts were considered as "treated." The others, 11 in all, including those receiving only blood transfusions and antibiotics, were considered as "untreated." Antibiotics and blood transfusions, however, were administered in each case, treated or untreated, according to the appropriate indications. Data for comparison were provided by 782 cases in series taken from the literature; single case reports were not included, and series limited to cases treated before the antibiotic era were not considered in order to avoid dissimilarity with the authors' group. These patients, children and adults, were also classified as treated (639) or untreated (143). Separate analyses were made for the several modes of therapy. It could not be shown that the newer therapies significantly increased the total survival in these groups. The median survival, however, in patients who had at least one complete remission was increased from four and one-half to eight months, which was found to be a statistically significant difference. Failure to find an increase in the total survival, which is rather surprising, may be accounted for in various ways, such as the possibility that the use of chemotherapeutic agents may fail to alter the course of acute leukemia in some instances while prolonging it in others; the fact that, of the series suitable for analysis found in the literature, only one was of later date than 1952; and, finally, that the use of 6-mercaptopurine was not adequately represented in the survey. Failure to show that therapy prolongs the course of acute leukemia in a large unselected group of patients, however, should not lead to a defeatist attitude in treatment or in the study of the effects of new antileukemic agents. Many patients treated by modern methods live to enjoy temporary improvement for several weeks or months. This reduction in morbidity, which does not appear in the statistics under discussion, should not be overlooked.

Accidents in the Course of Heparin Therapy: Reactions of Allergic Type. G. Massone. Minerva ginec. 7:491-493 (July 31) 1955 (In Italian) [Turin, Italy].

Allergic types of phenomena occurring during heparin therapy may be primary, caused by hypersensitiveness to the anticoagulant, and acquired, caused by sensitization. The former are generally rare and not too grave, and the latter are commoner and more severe and are characterized by shock, bronchospasm, and cyanosis. The author reports the occurrence of an allergic reaction due to hypersensitiveness in a 49-year-old woman to whom he gave 50 mg. of heparin intravenously for thrombophlebitis of the left leg secondary to a gynecologic operation. The symptoms—a transitory feeling of warmth, hyperemia of the skin and mucosa, diffuse urticaria-like signs, headache, and nausea—disappeared after the administration of antiallergic preparations and epinephrine. He observed the onset of nausea, sweating, and dyspnea followed by paresthesia to the extremities, bronchospasm, cyanosis, and shock in another patient, with thrombophlebitis that developed during the puerperium, who had tolerated well heparin therapy for five days. The administration of antihistamines, cardiovascular analeptic drugs, and oxygen in a closed circuit restored the patient to normal in two hours. In addition to phenomena caused by hypersensitiveness and sensitization to heparin, there are also allergic reactions that are both primary and secondary at the same time. These are the cases in which signs of intolerance that appear after the first injection are so mild as to be overlooked or underestimated, but they become progressively more severe during the subsequent injections. Such reactions can be defined as manifestations of a very slight primary hypersensitiveness that is followed by a marked sensitization. Massone observed this type of reaction in two patients who were benefited by the administration of antiallergic preparations and epinephrine.

PATHOLOGY

Further Experience with a New Blood Medium for the Cultivation of Mycobacterium Tuberculosis. M. S. Tarshis, W. A. Weed, P. C. Kinsella and others. Am. J. Pub. Health **45**:1157-1161 (Sept.) 1955 [Albany, N. Y.].

In earlier investigations it had been demonstrated that a medium containing plain agar, glycerol, outdated bank blood, and penicillin was satisfactory for the cultivation of tubercle bacilli under routine diagnostic conditions. It was found also that the medium was useful for determining the susceptibility of tubercle bacilli to streptomycin and isoniazid. The studies described here compare the new blood medium with the Lowenstein-Jensen medium under routine diagnostic conditions. It was found that the number of positive cultures obtained and the average time of first appearance of growth were slightly better on the blood medium than on the Lowenstein-Jensen medium. The number of tubes contaminated was much less for the former than the latter medium. This is attributed to the presence of penicillin. The chief advantages of the blood medium are economy, simplicity of preparation, and ability to grow tubercle bacilli from small inoculums, easily, recognizably, and in a short time. The ingredients are readily available, and fresh mediums can be prepared in a few minutes. Refrigerated mediums have proved stable in tightly sealed screw-cap tubes for as long as four months. All these factors should encourage a wider use of cultural methods for the bacteriological diagnosis of tuberculosis.

RADIOLOGY

The Vascular Pattern as an Aid to the Diagnosis of Bone Tumours. A. C. Begg. J. Bone & Joint Surg. **37B**:371-381 (Aug.) 1955 [London, England].

Roentgenograms taken at the end of an injection of 20 cc. of 50% iodopyracet (Diodone) solution into the bones of the leg indicated the extreme vascularity of the bones, particularly near an epiphysis, and emphasized the extraordinary capacity of the minute periosteal vessels. The nutrient artery of a long bone appears to play little part in its nourishment and may be regarded as a vestigial structure indicating the situation of the fetal diaphysis and the most avascular region of the adult bone. The vascular pattern of bone tumors may be investigated by arteriography after injection of the contrast medium into the appropriate artery. For lesions of the head and neck, the carotid or vertebral arteries may be used, for the shoulder girdle or the arms the subclavian artery, for the forearm the brachial artery, for the pelvic bones the abdominal aorta (preferably below the origin of the renal arteries), and for the thigh the common femoral artery or the superficial femoral or profunda femoris artery. The arteries of the leg are usually well shown by injection into the superficial femoral artery, but injection of the dorsalis pedis or posterior tibial arteries may be required to show the vessels of the foot. The examination is easily and quickly carried out by direct arterial puncture with the aid of local anesthesia and injection of 35% iodopyracet (Diodone) solution; a 70% solution is required for the aorta. A tourniquet applied distally at the appropriate level is often helpful. Sometimes, if a hemangioma is suspected, the injection of the contrast medium may be made directly into the lesion. Six illustrative cases are described in five women between the ages of 20 and 78 years and in a 39-year-old man, in whom a study of the vascular pattern of suspected bone tumor provided useful information by assisting both the diagnosis and the planning of treatment. The pathological diagnosis of some tumors, notably osteosarcomas and hemangiomas, may be made with such assurance that possible dissemination of the tumor by biopsy may be avoided.

Roentgenologic Observations in the Acrosclerotic Form of Generalized Scleroderma. A. Leszler. Fortschr. Geb. Röntgenstrahlen 83:353-365 (Sept.) 1955 (In German) [Stuttgart, Germany].

It is now generally realized that scleroderma is not limited to the skin but is a systemic disease involving the vascular and the connective tissues. It may cause extensive and characteristic changes in various internal organs. The 22 patients studied by the author included 19 women and 3 men, and ranged in age from 36 to 74 years. The disease had existed for from 1 to 39 years. All these patients had the so-called acrosclerotic form of scleroderma, and in many it had begun with symptoms suggesting Raynaud's disease. In three of the patients the disease was limited to the skin, and the roentgenologic examinations failed to reveal involvement of other organs. In two of these patients the disease had existed for only one or two years. In 7 patients only one other organ besides the skin was involved, and in 12 several organs were involved. The involvement of the internal organs occurs late, the author observing it chiefly in those patients in whom the disease had existed for 10 and more years. Case histories are presented of the eight patients in whom the most interesting changes were observed. The author observed calcifications of the soft tissues in only three of his patients, but in one of these three the calcinosis was extremely severe. His observations confirmed the fact that the sclerodermic calcinosis is found chiefly in the regions of the joints—the shoulder, elbow, hand, and hip joints. Changes in the bone system were most frequent; they occurred in over 70% of the patients, appearing mostly in the form of osteoporosis of the bones of the hands and of osteolysis in the ungual phalanges. Involvement of the lungs, chiefly in the form of fibrosis and of bronchiectasis, was observed in 8 of the 22 patients. Cardiac enlargement was observed in four patients, but it could not be definitely demonstrated that this cardiac enlargement was connected with the scleroderma. The digestive tract was involved in half of the patients—lesions of the esophagus, in the form of mucosal atrophy, stiffness of the walls, cardiospasm, and disturbances in the esophageal passage being most frequent.

Treatment and Prevention of Leukopenia from Roentgen Therapy with a New Thymonucleic Acid Extracted from Fish Milt, Desoxyribose Tetranucleotide. R. Coliez, A. N. Loiseau and R. Sarfati. Presse méd. **63**:1137-1139 (Aug. 27) 1955 (In French) [Paris, France].

Desoxyribose tetranucleotide, a free, unstable nucleotide obtained from fish milt and developed in France under the name of Eucytol, has a marked stimulating effect on hematopoiesis, especially the regeneration of white blood cells. The authors administered it to 150 cancer patients undergoing deep irradiation therapy, all of whom showed blood disturbances and 50 of whom had a serious degree of leukopenia. From four to eight 0.05 gm. tablets of the product were given orally each day. The white blood cell count rose to safe or even normal levels within six to eight days. Thus the patients who had had severe leukopenia could continue their planned course of radiotherapy. Desoxyribose tetranucleotide, given simultaneously with a course of irradiation, constitutes an excellent prophylactic against sudden drops in the leukocyte count with the consequent necessity of interrupting treatment.

BOOK REVIEWS

The Physician and the Law. By Rowland H. Long. Foreword by Milton Helpern, M.D., Chief Medical Examiner, New York City. Cloth. $5.75. Pp. 284. Appleton-Century-Crofts, Inc., 35 W. 32nd St., New York 1, 1955.

There are not many books on the market that discuss those basic legal problems with which all physicians should have at least a nodding acquaintance. Furthermore, one can count on the fingers of one hand the books of this kind that are suitable for use by medical students. It is necessary to strike a happy medium between a book that is too simple and one that assumes a basic knowledge that does not exist. Mr. Long is to be commended both for his effort and his accomplishment. Although he has written primarily for the practicing physician, the book is suitable for use by medical students as well, and he has crowded a great many helpful suggestions and basic information into it. His discussion emphasizes the field of malpractice and the expert witness but also contains brief statements on such subjects as adoption, artificial insemination, medical licensure, workmen's compensation, blood tests, and the mentally ill. In order to cover these subjects even briefly, resort has been made to rather positive general statements. Such statements on almost any legal problem are subject to a certain amount of criticism. They do, however, have the merit of giving the physician a starting point, even though a legal brief could be written to support a contrary view. The author has not intended his book to be a legal treatise. References are comparatively few, many of them are to court decisions more than 20 years old, and they are placed at the end of chapters rather than as footnotes. This discourages their being read. The important thing, however, is that they are given, and the more curious physician and student may dig more deeply than the bare text if they wish to do so. There is a good glossary of legal terms, and the index is short but adequate. This book should serve as a primer satisfactory for practicing physicians and medical students.

Praktische Anatomie: Ein Lehr- und Hilfsbuch der anatomischen Grundlagen ärztlichen Handelns. Band I, Teil 2: Hals. Von Dr. T. von Lanz, o.ö. Professor der Anatomie, Direktor des anatomischen Instituts der Universität München, und Dr. W. Wachsmuth, o.ö. Professor der Chirurgie, Direktor der chirurgischen Universitäts-klinik und Poliklinik Würzburg. Cloth. 210 marks; subscription price, 168 marks. Pp. 549, with 322 illustrations. Springer-Verlag, Reichpietschufer 20, (1) Berlin W.35 (West-Berlin); Neuenheimer Landstrasse 24, Heidelberg; Göttingen, Germany, 1955.

This monograph on the neck is one of a series devoted to the applied anatomy of the human body. Volumes dealing with the arm and with the leg appeared in 1935 and 1938 respectively. These volumes are the scholarly product of the work of an anatomist and a surgeon extending over more than 20 years. Since practical considerations predominate, the anatomy of the neck is presented in the book largely from regional, topographical, and functional points of view. Systematic and developmental treatments are used to a lesser extent to supplement regional approaches. These varied treatments serve to set forth the anatomy of the living as the foundation of medical practice in general, and surgery in particular. The book is profusely illustrated with drawings, mostly in color, of exceptional quality. Illustrations are of sufficient size to facilitate location and identification of structures. In addition, there are a number of plates emphasizing relations and surface anatomy, usually by "phantom" views. This volume is so comprehensive in scope that it has no counterpart in the English language. Braus' German anatomic classic approaches it most closely in quality and manner of treatment. Eighty-five pages of bibliographic references are keyed to specific statements and illustrations in the text. The table of contents and index are extensive. The text is printed in large clear type on heavy glossy paper. Cover and bindings seem durable. Although written in German, which tends to limit its use as a textbook, the superior quality and variety of illustrations recommend it as an important atlas of regional and surgical anatomy. This volume should be available for reference in all anatomical and medical libraries.

Leonardo da Vinci: Das anatomische Werk mit kritischem Katalog und Abbildungen. Von Sigrid Esche. Ars Docta Band VIII. Half-cloth. 55 Swiss francs. Pp. 173; 175 plates. Holbein-Verlag, Rittergasse 19a, Basel, Switzerland, 1954.

The drawings of Leonardo da Vinci have been called the first truly scientific illustrations in the history of anatomy. Although he was occasionally misled by traditional concepts, his methods resulted in a large number of fresh and unprejudiced anatomical and physiological discoveries. In his drawings it is no exaggeration to declare that the body of man not only appears to function but changes. This accomplishment is adequately demonstrated in the present volume. For readers who are interested in one facet of the startling genius of a great representative of the Western world, this book will serve as a highly instructive and informative introduction. The critical notes add much to the background of the drawings.

Statistics of Therapeutic Trials. By G. Herdan, M. Sc., Ph.D., LL.D., Lecturer in Medical Statistics, University of Bristol, Bristol, England. Cloth. $10.50. Pp. 367, with 44 illustrations. Elsevier Press, Inc., 2330 Holcombe Blvd., Houston, Texas; 155 E. 82nd St., New York 28; 118 Spuistraat, Amsterdam-C, Netherlands [distributor for British Commonwealth, except Canada: Cleaver-Hume Press, Ltd., 31 Wright's Lane, Kensington, London, W.8, England], 1955.

This book is designed to serve as a guide for physicians who wish to apply statistical techniques in the evaluation of therapeutic data. Rather than serving as a condensed textbook on the statistics of probability applied to a subclass of medical statistics, it provides the practitioner with a reading knowledge of some simple approaches to the process of statistical inference. "Therapeutic statistics" is a summary term for the statistical procedures that are used in the design and evaluation of results of therapeutic trials carried out to compare different treatments. Thus, this term comprises both the statistical principles of the single trial, referred to as clinical statistics, and comparative therapeutics, which embodies the comparison of the results obtained at different times and places and in different classes of patients under varying conditions. In the effort to provide a quantitative measure for comparing the utility of alternative procedures, the magnitude of differences relative to their respective sampling errors are considered. This leads to a preliminary discussion that is handled in a rather superficial fashion. For example, one finds the statement on page 4, "Since even great differences might conceivably arise on pure chance, but with a very small probability which for all practical purposes might be neglected, we draw the dividing line between chance and significant differences at a specified multiple of the Standard Error [which is explained 78 pages later] to which corresponds a certain very small probability. Greater differences, having a smaller probability, are then considered as being due to a specific cause, that is, in our case, to the treatment in question." It might be pointed out that probability analysis precludes the neglecting of various levels of probability, thus the dividing line is a matter of arbitrary choice of the experimenter contingent on the level of significance selected. The magnitude of the difference between various measures, if related to the standard error, does not permit the direct assignment of causal factors but merely the nature of the association under similarly controlled experiments.

It is unfortunate that the section on statistical central values is written in such a manner as to be misleading, if not in error. Due to an error in proofreading, one finds on page 64 that other values of importance are the "medium," the mode, and the geometric mean. Only two characteristics of the arithmetic mean are found in this section. Omitted are other equally important attributes. On page 68 the author states, "The median is a use-

---

These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

ful form of average whenever there is an excessive number [what constitutes an excessive number?] of very small or very large observations. . . ." On page 69 the reader is alarmed to discover the statement that "In such a case, the mean does not represent the majority of observations or the most probable value." It might be pointed out that in no case does the mean represent the majority of observations or the most probable value. There is a measure of central tendency called the mode that presumes to express these characteristics. On page 73 is found the statement that "The duration of a disease is a useful criterion for the therapeutic comparison only if the fatality rate for that disease is small. Otherwise, it cannot be recommended for both clinical and statistical reasons." The student who wishes to apply the appropriate statistical techniques in the evaluation of data resulting from therapeutic trials might be concerned with the question of knowing the limits of the magnitude of the fatality rate that invalidate the usefulness of the criterion of the duration of a disease for therapeutic comparison.

The unorthodox presentation of the relation between the normal and the Bernoullian law that is found on pages 78 and 79 will be of interest to medical statisticians. Of particular interest is the statement that "The law which governs the random sampling fluctuations of frequencies, absolute or relative, of a particular outcome of a disease, is the *Bernoullian law*. The law which governs the distributions of counts and measurements due to biological variation is the *Normal law*, and the same law also governs the distribution of measurements affected by errors of observation and experiment, by themselves and in conjunction with biological variations. . . . The Bernoullian law governs only the random sampling variation of such counts; but since they are also affected by errors due to biological variations from patient to patient and with observational and experimental errors, the law of chance to be used when considering their distribution, is the Normal law."

The description of the concept of the coefficient of regression found on page 172 differs from that usually employed. In the linear expression $x=a+bt$ the coefficient b, which is the tangent of the angle of inclination, is usually designated as the incremental change in x per unit change in t rather than the coefficient of regression. The latter term is reserved usually to correlation analysis and the former to a series of values ordered by time. When this phrase is related to the statement found on page 173 that "For large samples b is normally distributed with σ_b as its standard deviation. . . ." the thought becomes clouded, insofar as it appears to be inappropriate to speak of a distribution of a single-valued function. The text is extensively documented. The footnotes are located at the end of each chapter. This book should serve as an excellent introduction to this important segment of medical statistics but will not equip the physician with a working knowledge of "statistics of therapeutic trials."

Angiographic Localization of Intracranial Masses. By Arthur Ecker, M.D., Ph.D., State University of New York, Syracuse, and Paul A. Riemenschneider, M.D., State University of New York. Cloth. $13.50. Pp. 433, with 413 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto, 2B, Canada, 1955.

This book is a companion volume to "The Normal Cerebral Angiogram," which Dr. Ecker wrote in 1951. Like the previous book, it is a reference atlas, composed of a series of cerebral angiograms in proved cases of intracranial masses. Part 1, "Orientation," consists of a single chapter including diagrams of the normal cerebral vascular pattern in different projections, followed by line drawings and descriptions of the vascular displacements produced by masses in each region. Part 2, "Localization," illustrates the effect of a mass in various regions on the local vascular pattern. The classical appearance is generalized in diagrammatic form at the beginning of each chapter, and the subsequent roentgenographic illustrations are supplemented in many instances by reproductions of the plain films, pneumograms, surgical exposures, and pathological specimens. The arbitrary division of intracranial masses into 27 regional sites is justified on the grounds of the distinctive changes in the vascular pattern caused by a mass in each region. Thus, instead of referring to frontal lobe tumors as a group, seven subgroups of frontal masses are analyzed separately because the alterations they produce are different and distinguishable. The careful representation of the kind of vascular displacement produced by masses and of the vessels affected constitutes the core of this volume and its major usefulness.

A number of gaps must be mentioned. There is no discussion in the book of (1) the indications for carotid angiography; (2) the relative value of carotid angiography as contrasted with ventricular air studies; (3) the limitations of carotid angiography; and (4) the interpretative and diagnostic hazards. Virtually all workers with cerebral arteriographic studies have been confronted with a certain number of missed diagnoses and misleading appearances. A discussion by the authors of proved misdiagnoses might have been extraordinarily rewarding. Furthermore, the vascular pattern of the gliomas in angiography receives singularly little attention. The format is good, the type readable, and the line drawings accurate. As in "The Normal Cerebral Angiogram," all roentgenographic illustrations reverse the whites and blacks of the original roentgenograms. This departure from general American practice is not helpful. In spite of these criticisms, the authors have used the atlas method to elaborate a valuable reference source, to which cases under study may be compared. They emphasize their own practice of using a set of proved cases in their file for study of current problem cases in daily work and they suggest that this text may be employed in similar fashion. Used in this way, this volume should be of great value.

The Life and Work of Sigmund Freud. Volume 2: Years of Maturity, 1901-1919. By Ernest Jones, M.D. Cloth. $6.75. Pp. 512, with 15 illustrations. Basic Books, Inc., 59 Fourth Ave., New York 3, 1955.

The second volume of the proposed three volume biography of Sigmund Freud is divided into three parts. Part 1 deals with Freud in his maturity at the time when he waged his battle against the hostile world and no less hostile medical profession. He had disciples, but they were few, and even these were not in full accord with his views. Before long, dissensions and even defections developed. Prominent among the deserters were Adler, Stekel, and Jung. The second part of the book is particularly interesting and valuable because of the comprehensive, though brief, exposé of Freud's contributions to the subjects of infantile sexuality and the libido theory. These indeed are the most important elements in Freud's investigation of the "unconscious." The third part, analyzing Freud as a man, is excellent. What sort of person was the man who was able to penetrate the mystery of the unconscious? We discover, much to our surprise, that this man, who entertained most liberal, if not radical, views on the subject of sex, was "quite peculiarly monogamous." What is even more surprising is that this supreme psychologist was a poor judge of men. At least that was the feeling of all the disciples. The literary quality of the book is of the same high order as that of the first volume. Although the author is prejudiced in favor of his hero, this does not detract from the quality of the whole.

Introduction to Parasitology with Special Reference to the Parasites of Man. By Asa C. Chandler, M.S., Ph.D., Professor of Biology, Rice Institute, Houston, Texas. Ninth edition. Cloth. $8.50. Pp. 799, with 257 illustrations. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16; Chapman & Hall, Ltd., 37-39 Essex St., Strand, London, W.C.2, England, 1955.

This new edition is an extensive revision of an authoritative and well-known volume first published in 1918. The organization of the text reflects the author's concept that the most desirable approach to the subject of parasitology is a comprehensive integrated account of the entire field. It is not intended to be a definitive textbook for advanced students and highly trained specialists. Following a historical introduction and a chapter dealing with general considerations of parasitism and nomenclature, three major sections deal with the protozoa, worms, and arthropods. The individual species are considered separately and in detail dealing with their structure and physiology and the epidemiology and pathological effects of infestation with them. Recent advances in treatment are well covered. Although the descriptions of the diseases produced are often insufficient for the purposes of the physician, the information provided is accurate and adequate enough to give a good general picture of the condition. The discussions of epidemiology are particularly good. The many excellent drawings and photographs contribute materially to the value and usefulness of the book, as does the inclusion of a list of basic references at the end of each chapter. The descriptions and discussion of certain parasites of animals add to the general interest of the volume. The style of presentation makes this volume unusually readable for a technical work in this field. One or two typographical errors obscure the meaning of the particular paragraphs they appear in, but such errors are few and far between. A complete index is provided. This book cannot fail to be of interest and use to physicians interested in the fields of medical parasitology and tropical medicine and should be included in all libraries dealing with these subjects.

Faith, Reason and Modern Psychiatry: Sources for a Synthesis. Editor: Francis J. Braceland, M.D., ScD., F.A.C.P. Cloth. $6. Pp. 310. P. J. Kenedy & Son, 12 Barclay St., New York 8, 1955.

Faith, reason, and modern psychiatry seem to be coming closer and closer each year. The newspaper reviews of this subject are increasing in number and depth. Until relatively recently, the viewpoints of religion and psychiatry were contradictory. In the past year, the President of the American Medical Association, Dr. Elmer Hess, was widely quoted in the press as saying that "when the doctor entered the sick room, he did not go in alone." This was a very valuable and important step in the right direction. Much good should come from it. Although until recently, psychiatry was one of the weak links in medicine, it now goes forward rapidly. Some practitioners of medicine have been critical of psychoanalysis, or rather of the interpretation of psychoanalysis. Some believed that it was necessary for psychiatry to begin again with this phase of its work. The present volume is an intelligent approach to the subject by theologians and psychiatrists. The statements of the various writers on both sides are tolerantly and scientifically approached. The reviews by the editor are excellent. No doubt the book will be praised and criticized, but it should act as a much needed bridge between two points of view and should become a useful reference work.

Cough Syncope. By Vincent J. Derbes, M.D., F.A.C.P., Professor of Medicine, Tulane University of Louisiana School of Medicine, New Orleans, and Andrew Kerr, Jr., M.D., Assistant Professor of Medicine, Louisiana State University School of Medicine, New Orleans. Publication number 231, American Lecture Series, monograph in Bannerstone Division of American Lectures in Internal Medicine. Edited by Roscoe L. Pullen, Professor of Medicine and Dean, University of Missouri School of Medicine, Columbia. Cloth. $4.75. Pp. 182, with 7 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, Canada, 1955.

The unusual syndrome cough syncope is well presented. Detailed discussion of the literature, as well as the author's experience is given. Differential diagnosis, related conditions, theories of mechanism, physiological mechanisms, prognosis, medicolegal aspects, and treatment are described, and an extensive bibliography is available. The recognition of cough syncope should be understood by all physicians. The illustrations and tables are clear. This book is highly recommended.

The Science Book of the Human Body. By Edith E. Sproul, M.D. Cloth. $4.95. Pp. 232, with 92 illustrations by Kathleen Elgin. Franklin Watts, Inc., 699 Madison Ave., New York 21, 1955.

Generously illustrated, this volume for nonprofessional readers presents lucid descriptions of the various body systems. Additional special chapters are devoted to the liver, the blood and lymph, metabolism, pregnancy, and the skin. In an introductory chapter, the author describes basic aspects of tissue structure with the varying characteristics, cells and how they function, and the phenomena of growth and repair. The terminology used throughout the volume is appropriate for the indicated reader group. The author has an easygoing, friendly writing style that makes the text run smoothly. An unusual feature is the inclusion, in addition to the many smaller illustrations, of 32 special plates in which relationships of organs are demonstrated for all parts of the body. Among these are illustrations of muscles in action, as well as bones and various types of joints. Other helpful features are an extensive glossary of terms, a bibliography, and a good index. This book can be recommended to patients who want to learn more about the normal functions of their bodies.

Child Behavior. By Frances L. Ilg, M.D., Director, Gesell Institute of Child Development, New Haven, Conn., and Louise Bates Ames, Ph.D., Director of Research, Gesell Institute of Child Development. Cloth. $3.95. Pp. 364. Harper & Brothers, 49 E. 33rd St., New York 16, 1951-1955.

This is a compendium of advice to parents about rearing children in their first 10 years of life. The authors' long training and experience is well reflected in the objectivity of their evaluations and the clarity of their discussions. The principal themes are the processes of human growth and development, considered not in terms of oversimplified Freudian "libidinal phases" but as progressive maturations continuously modifiable by directed experience. Many a harried parent's questions will be answered by the volume without vagueness or dogmatism. The book is enhanced in usefulness by a full index and is recommended as a reliable source of information and guidance in its field.

Introduction to Chemical Pharmacology. By R. B. Barlow, Research Fellow, Yale University School of Medicine, New Haven, Conn. With foreword by H. R. Ing, F.R.S., Reader in Chemical Pharmacology, University of Oxford, Oxford, England. Cloth. $6.25. Pp. 343, with 53 illustrations. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16; Methuen & Co., Ltd., 36 Essex St., Strand, London, W.C.2, England, 1955.

The subject of this book is the relation between chemical constitution and physiological action. As Dr. Ing indicates in the foreword, "It has been a somewhat disappointing subject of study, and some workers have despaired of finding any convincing relationships." That this despair is gradually being dispelled is evidenced by the basic advances in pharmacology in the last 20 years. This timely book considers these advances and their underlying problems after an introductory chapter reviewing basic pharmacological considerations such as the kinetics of pharmacological reactions and mechanism of drug action, the receptor theory, factors influencing drug-receptor complex, sites where drugs act, and other topics related to a full understanding of the subject under discussion. Drugs are classified according to their sites of action, e. g., central nervous system, peripheral nerves, synapses, and certain tissues and organs. Eighteen chapters are devoted to these subjects, followed by a short chapter devoted to the author's conclusions, present knowledge, and predictions for the future. Two appendixes provide brief accounts of anatomy, physiology, and biochemistry to aid those readers without a background in the biological sciences. An index of proprietary drug names and symbols is also appended to aid in identifying agents discussed in the text. The author has provided a concise review of a broad range of pharmacological phenomena. A textbook of this type has been greatly needed. It was primarily written for chemists, but physicians, pharmacologists, and all others interested in the action of changes on biological systems can read it with profit.

Lectures on the Scientific Basis of Medicine. Volume III: 1953-54. British Postgraduate Medical Federation, University of London. Cloth. $6. Pp. 398, with illustrations. John de Graff, Inc., 64 W. 23rd St., New York 10; The Athlone Press, University of London, 2 Gower St., London, W.C.1; distributed by Constable & Co., Ltd., 12 Orange St., London, W.C.2, England, 1955.

The avowed purpose of the annual series of lectures on the scientific basis of medicine is to furnish an integrated survey of current scientific research in relation to clinical medicine and surgery. The lectures published in this volume reflect the growing knowledge of the structure of biological tissues and their reactions to injury, the use of radioisotopes and the method of chromatography, the importance of connective tissues, the actions of enzymes and hormones, infection and immunity, the chemical transmission of nerve impulses, the actions of the anticholinesterases, and experimental dermatology and psychopathology. These authoritative discussions provide a clearer understanding to mature readers of the problems characterizing health and disease.

QUERIES AND MINOR NOTES

SILICOSIS

To the Editor:—*1. What is the accepted definition of silicosis? 2. How much free silica dust of particles less than 10 μ in diameter can a normal lung handle without deleterious effect? 3. What is the effect on the lung of an individual working in an atmosphere of less than 5 million particles per cubic foot (of harmful size) in which lung there are already signs of silicosis and in which lung there are already signs of tuberculosis? 4. How long does it require for silicosis to develop in a lung under the following general ranges of dust counts of harmful particle size: 10 to 20 million, 50 to 75 million, 100 to 200 million, and 500 million and up? 5. Does the demonstration of a few anisotropic crystals by polarizing microscope in a section of lung tissue make the diagnosis of silicosis? If not, how much silica is required in such sections to make the diagnosis? 6. How much silica by weight in proportion to the weight of the ashed lung is required to make a diagnosis of silicosis? 7. How much silica by weight in proportion to the weight of the ashed lung is required before one can say that it is enough to influence tuberculosis adversely?*

M.D., California.

Answer.—Answers to these concise questions may not be made in equally concise language. Only comment is warranted. 1. Silicosis as a human disease entity may conveniently be defined as one of the pneumonocoses produced solely by silicon dioxide (silica) in restricted particle size range, in which the characteristic lesion is the silica nodule, which well-established disease in the presence of known exposure usually may be diagnosed by the appearance of the x-ray film and at autopsy by the exhibition of silica nodules; however, at autopsy the majority of adults may reveal a few characteristic nodules with or without industrial exposure. Disability is not determined by the disclosure of characteristic nodule shadows in the x-ray. nor by the finding of a few characteristic nodules at autopsy. Well-established and diagnosable silicosis may exist in the absence of disability, and the certainty of disability is provided only through appropriate pulmonary function tests influenced by knowledge of sufficient exposure. In silicosis there are no exact subjective or objective symptoms. 2. Formerly it was believed that all silica particles near to and below 1 μ in size could contribute to the causation of silicosis. Recent work impels the belief that gross exposure to ultramicroscopic-sized particles, that is, particles in size of thousandths of microns, will not induce conventional silicosis but may induce a less severe pulmonary affection with damage chiefly to the surface of pulmonary air passages. Prior to that state of silicosis discernible in the x-ray there must be antecedent pathology, which damage it now is believed may involve the pulmonary capillary bed and with some threat to the total pulmonary circulation. Such and other reservations prevent any exact answer to this question. For practical purposes there is justification to adherence to the concept that long exposures to silica particles in size below 10 μ, in numbers below 5 million particles per cubic foot of air, will not provoke significant or disabling silicosis. 3. Since silicosis once established as here stipulated may progress without any further exposure, it becomes impossible to distinguish between such progression and the effect of continuing minor exposure. On a practical basis obviously at exposure levels well below the 5 million maximum no added threat is expectable. The question as to tuberculosis is only of academic import, since no person with active tuberculosis should be permitted to work. In the instance of healed pulmonary tuberculosis, the previous patient should be permitted to work under the exposure conditions mentioned if accorded judicious medical supervision. 4. Time is a decided variable in silicosis. The majority of workers never will acquire silicosis. With increasing exposures, greater will be the numbers of silicotics and earlier the appearance of the disease. Little exactness is predictable on a time basis. 5. The demonstration of fragments of silica crystals or whole crystals of cryptocrystalline silica only proves exposure, not silicosis. 6. The lung content of silica and other silicon compounds, with and without ashing, has been examined by various methods. The results strikingly are without uniformity. From a series of known silicotics the percentage of free silica in the lung ash runs higher than from a series of lungs from persons without known exposure. In single instances the results may not be conclusive. In one series the percentage of free silica ash ranged from 4.6 to 22.8, while for unimpaired lungs the corresponding range was 1.28 to 4.0%. Lately the matter has become even more complex by disclosure that highly fine particles of silica do not cause silicosis. The determination of silica in lung tissue at autopsy or in life through biopsy may not constitute a valid basis for silicosis diagnosis. 7. It is not known that the incidence of tuberculosis accompanying silicosis is a quantitative affair. Occasionally the belief is encountered that the incidence of tuberculosis along with silicosis is no higher than the general rate of tuberculosis among males of comparable ages in a given community. Certainly it is not established that those ultramicroscopic silica particles causing no silicosis still will not contribute adversely to the frequency of tuberculosis.

THE WORD "CLINIC"

To the Editor:—*What is the proper and ethical use of the word "clinic." My own opinion is that its use sprang up in the United States as referring to a group of several doctors each limiting his practice to a specialty; usually there was a close business and professional relationship. In recent years the word is used to apply to the office of one or more doctors, rather loosely associated. In the latter case its use is similar to its use in England. Are both uses proper and ethical?*

M.D., Nebraska.

Answer.—In this country, although the word "clinic" is still applied in some areas to free dispensaries, and is sometimes used to describe a teaching session involving the use of patients, it is most commonly used to connote the pooled efforts and facilities of several physicians practicing together as a group. In the latter sense, so far as can be determined, there are no legal restrictions regarding the number of physicians who must practice together in order to qualify for the use of the word clinic. However, the American Association of Medical Clinics does not admit to full membership any group of fewer than seven full-time physicians nor fewer than five in associate membership. It would appear that there are no specific legal or ethical prohibitions to the use of the word clinic as applied "to the office of one or more doctors, rather loosely associated."

In 1934 the Judicial Council, by resolution, proposed an amendment to the Principles of Medical Ethics. A "whereas" clause of its resolution noted that "groups and clinics were little known, were not serious competition and were not mentioned when the present general revision of the Principles of Medical Ethics were adopted in 1912." The resolution was adopted, and the Principles were revised to include Chapter 1, Section 3, "Groups and Clinics." That section reads in part as follows: "The ethical principles actuating and governing a group or clinic are exactly the same as those applicable to the individual." However, such use of the word clinic for one or two physicians would seem to constitute an attempt to acquire the advantages in public relations that have been given this designation by the reputations of some of the large and well-known groups of physicians.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

TETANUS IMMUNIZATION

To the Editor:—*A 16-year-old boy has been given tetanus antitoxin on two occasions in the past. One week following the first injection he developed generalized urticaria, arthralgia, and mild laryngeal edema. Several hours after the second injection, about one year later, he developed laryngeal edema, urticaria, and a general reaction resembling shock. This was eventually brought under control by means of oxygen, antihistamines, adrenalin, and corticotropin. This boy recently came under my care, and I should like to know if it will be safe to give him tetanus toxoid, to be followed by booster toxoid injections at intervals of several years or as necessitated by injuries.* *M.D., Arizona.*

Answer.—Since tetanus toxoid is not a serum product but is the altered toxin product of the tetanus bacillus, it does not give rise to urticaria or serum sickness. In the case under consideration, it would seem advisable to immunize this boy and keep him immunized with booster injections at suitable intervals. There are two methods of accomplishing this. One is the use of the alum-precipitated toxoid given in 0.5 cc. doses. This method requires two injections, one following the other at an interval of four to six weeks. The other method is the use of three doses of 0.5 cc. of fluid toxoid, each given at an interval of three to four weeks. The Navy used the former method; the Army, the latter. Since results were equally good with either method, it would seem to me that one requiring only two injections is to be preferred. Booster injections at the time of injury and at suitable intervals to maintain immunity should be done, and, in the event of injury, no antitoxin should be given.

INDICATIONS FOR HYSTERECTOMY

To the Editor:—*Please send information on the clinical and pathological indications for hysterectomy.*

H. Paul Miller, M.D., Fort Wayne, Ind.

Answer.—The chief indications for hysterectomy are: (1) fibromyomas of the uterus with excessive bleeding; (2) pelvic inflammatory disease necessitating removal of both adnexa (in general, whenever both ovaries must be removed, the uterus should also be extirpated); (3) diseases of the adnexa, such as bilateral dermoid cysts, in cases where normal ovarian tissue cannot be saved and also endometriosis in women past 40 years of age; (4) normal-sized or enlarged uterus due to fibrosis uteri associated with hemorrhage that does not cease after curettage in women past 40 years of age (the ovaries should not be removed); (5) in cases of prolapse of the uterus in elderly women, the uterus is often removed, even though hysterectomy is not essential to the cure of prolapse; (6) carcinoma of the corpus; (7) selected cases of carcinoma of the cervix where a radical operation is to be performed; (8) choriocarcinoma of the uterus; (9) hydatidiform mole in a woman past 45 years of age; (10) sarcoma of the uterus; (11) malignancy of the tubes or ovaries; (12) some cases of severe cervicitis in women past 40 years of age who also have excessive menstruation but not sufficient by itself to justify hysterectomy; (13) dysmenorrhea that does not yield to medication, dilatation of the cervix, and even sympathectomy in women who have had children; (14) stenosis of the cervix from operation or cauterization not curable by dilatation of the cervix and a stem pessary; and (15) as a sterilization procedure rarely at the time of a therapeutic abortion but more often after several cesarean sections.

SELENIUM POISONING

To the Editor:—*Is there any danger to health in the use of selenium rectifiers in electrical instruments in the event of breakage of the rectifier and possible selenium poisoning?*

Michael Bernfeld, M.D., Tucson, Ariz.

Answer.—There is probably little or no health hazard due to the actual breakage of a selenium rectifier as used in electronic apparatus in the home and hospital laboratory. It is possible that when selenium rectifiers are heavily overloaded that fumes containing selenium may be generated. This subject has been considered by Drinker and Nelson (*A. M. A. Arch. Ind. Hyg.* 8:185-189 [Aug.] 1953). Under conditions of the test reported by these authors, concentrations of hydrogen selenide (H_2Se) of 0.001 ppm developed. The American Conference of Governmental Industrial Hygienists recommends 0.05 ppm as the maximum concentration for eight-hour exposures. It was concluded that in view of many factors that mitigate exposure, such as objectionable odor, ordinary ventilation, brief exposure periods, there is no danger to health of radio and television owners or service men from the occasional accidental burning out of selenium rectifiers.

INDURATION OF CORPORA CAVERNOSA

To the Editor:—*A 40-year-old businessman complained of a posterior curvature of the erect penis of about one month's duration. The onset was gradual and painless. There was no history of trauma. He denies ever having venereal disease. On palpation of the flaccid organ, a definitely calcified mass can be outlined from the base of the penis extending to the glans, on the anterior surface. It corresponds to the location of the corpus cavernosum urethra. There is no tenderness on examination. Blood and urine studies are negative. The prostate is normal to touch, and microscopic examination of the secretion shows only an occasional pus cell. A number 24 French catheter can be passed with ease. A urologist expressed the opinion that this is an unusual form of induration of corpora cavernosa (Peyronie's disease). He felt that neither surgery nor deep x-ray would be of benefit and that the preferred therapy was 40 drops of wheat germ oil daily, given for a year or more. Do you agree, or do you feel that further laboratory study is indicated? This patient is in excellent general health.* *M.D., New York.*

Answer.—Judging from the inquiry the penile lesion probably represents a form of induration of corpora cavernosa (Peyronie's disease). The site of the calcified area in the anterior surface of the penis is occasionally observed. Surgical treatment has proved unsatisfactory in most of these cases. Good results have been reported following the application of radium in about 30% of the cases so treated. Favorable results also have been reported following the administration of cortisone. The therapy with wheat germ oil has not gained wide acceptance. The patient can be reassured that this condition is not progressive and that he will gradually accommodate himself to the symptoms present.

FLEETING ERYTHEMATOUS PATCHES AND HIVES

To the Editor:—*A 45-year-old professional man has been under my care for a year. His chief complaint is large patchy erythematous areas often associated with giant hives. At times, these areas look like geometric patterns or like flames from a burner, and they may involve the face. The erythema usually subsides quickly, only to reappear again when the patient is tense, frustrated, or resentful over something in his professional duties. There has never been any involvement of the mucous membrane of the mouth. A short course of hydrocortisone orally last year produced excellent results, but when this medication was discontinued the clinical picture returned. Antihistamine was also tried without effect. Laboratory studies including stool examination, complete blood cell count, sedimentation rate, nonprotein nitrogen studies, and blood sugar level are all within normal ranges; a few visits to an allergist produced no clues. Could you suggest a course of treatment?*

N. W. Nemiroff, M.D., Oradell, N. J.

Answer.—The association of fleeting erythematous patches with giant hives is rather characteristic for the group of toxic or allergic erythematourticarial eruptions. Fleeting erythemas develop where the concentration of liberated histamine is so low that only the first phase of the triple response of Thomas Lewis, the "local vasodilatation," develops. Where higher concentrations of histamine are liberated urticarial wheels or, if the allergic reaction occurs in deeper and larger vessels, giant edema results. This is the explanation for the frequent combination of erythematous patches with urticaria. The geometric configurations of such patterns are due, according to Lewis, to the diffusion of histamine to the periphery and to development of refractoriness in the center. This pattern is most frequently seen in allergic drug eruptions. But there are many cases of "erythema figuratum" with and without urticaria in which even the most thorough investigation will not unveil the cause. In such cases the condition may last for years. Finally, probably through spontaneous desensitization, the eruption disappears. Emotional impulses often play a provocative role. There is, however, no proof for the rather fashionable assumption that such eruptions are purely psychogenic. If the patient is under psychoanalysis for a year or longer and subsequently gets well, it is impossible to rule out spontaneous termination of the disease. Aggravation under emotional stress is no proof for psychic causation either, only for aggravation by psychogenic vasomotor reaction. Any erythema gets redder if the patient blushes, and histamine has a more intense effect in flushed than in normal skin. The condition can be best controlled by antihistaminics. They are superior to adrenal steroid therapy because in chronic cases, with judicious dosage, they are not so much fraught with the danger of undesirable side-effects. Rarely, true allergy may develop against antihistaminics but in such cases switching to another compound of different chemical composition solves the problem. Periodic general check-ups and white blood cell counts are indicated when antihistaminics are administered over long periods of time.

INVOLVEMENT OF LOWER BRAIN STEM

To the Editor:—*A 65-year-old married woman was in excellent health until 15 months ago when she noted a swelling of her left elbow and forearm that lasted one week and was followed by a weakening of the right wrist, shoulder, elbow, and hand. Three months ago the same sequence followed in the left upper extremity. Two months ago she began to notice a weakening of her legs and in her neck and a dragging type of speech developing. Examination revealed moderate obesity, blood pressure 160/100 mm. Hg, pyorrhea, and slight excoriation of chin suggesting excessive salivation. The neurological examination showed some air conduction deafness of left ear and a lateral nystagmus. Patient's head is carried forward and quickly tires when she tries to hold it up. Shoulder and elbow motions show some weakness. There is complete paralysis of hands. Fasciculations are noted at times in hand muscles, and there is marked atrophy of the thenar muscles. There is some weakness of legs, particularly the left. Reflexes are hyperactive in arms and equivocal in case of abdominals, and Babinski's signs are negative. Blood cell count and urine are normal. Sedimentation rate is 22 mm. per hour (Westergren). The Wassermann has not yet been reported. Is this amyotrophic lateral sclerosis? Please discuss diagnosis and treatment.*

Evarts G. Loomis, M.D., Hemet, Calif.

Answer.—The patient's symptoms and signs indicate that there is predominantly an involvement of the lower brain stem and cervical spinal cord by a disease process; however, the brief history presented does not warrant a definite diagnosis of amyotrophic lateral sclerosis. Although this illness is a possibility the patient also could have one of the disorders that compress the lower brain stem and upper cervical cord such as platybasia, cervical spondylosis, or a foramen magnum meningioma. The lack of sensory involvement rules out syringomyelia. Further diagnostic studies are indicated, especially lumbar puncture with manometric (Queckenstedt) tests and determination of cerebral spinal fluid protein and serology. The latter also will rule out neurosyphilis. Special x-rays of the skull and cervical vertebra are warranted, especially to check Chamberlain's line (for platybasia) and the foramen magnum for erosion. If there is any suggestion of a cerebrospinal block, a myelogram should be performed. Otherwise a small pneumoencephalogram (using 8 to 12 cc.) might be helpful in ruling out a lesion in or around the fourth ventricle. These procedures are necessary since the disorders considered would be amenable to surgical therapy such as decompression or actual removal of an expanding lesion. If these procedures are all negative, then it is most likely that the patient has an amyotrophic lateral sclerosis with progressive bulbar palsy, and there is no known effective therapy. The prognosis generally is poor with life expectancy varying usually between two and five years after onset. Recently specific treatment has been unsuccessfully tried with vitamin E or alpha tocopherol, vitamin B complex, steroid hormone, and supra vital dyes. Only symptomatic and supportive measures can be given.

SCARLET FEVER

To the Editor:—*My question relates to scarlet fever. The booklet "Control of Communicable Diseases in Man" (an official report of the American Public Health Association), 1955, page 71 B2, states that isolation may be terminated after 24 hour treatment with penicillin, provided therapy is continued for 7 to 10 days. Would a single injection of 600,000 units of benzathine penicillin G (Bicillin) be considered penicillin therapy if continued for 7 to 10 days? In other words, could a case of scarlet fever or family contact be released from isolation 24 hours after a single injection as outlined above?*

Roy G. S. Dougall, M.D., Cobleskill, N. Y.

Answer.—It does not seem likely that the assertion referred to in the "Control of Communicable Diseases in Man" was intended to imply that a single dose of penicillin, regardless of its magnitude, could be relied upon to free a scarlet fever patient of hemolytic streptococci. The time quoted as a recommended period for penicillin therapy is "7-10 days." In some states the isolation period for uncomplicated scarlet fever is seven days from the onset and there are no restrictions in regard to contacts, nor are there any requirements in respect to medication.

PENICILLIN

To the Editor:—*Are all the Penicillium notatum and its mutations from which penicillin is processed derived from the mold that accidentally contaminated the culture of Dr. Fleming?*

M.D., New York.

Answer.—The answer to this question is no. The original penicillin that was first prepared for therapeutic use in 1940-1941 was derived from Penicillium notatum. Subsequently strains of P. chrysogenum were used for the production of penicillin because they give a high yield of units of penicillin, and one of these strains, NRRL-1951, was the parent strain from which high-yielding mutants were obtained. In the pharmaceutical industry, experimental work is being carried on continually to isolate and to develop new strains of mutants of Penicillium that will produce higher yields of this antibiotic.

ERYTHROBLASTOSIS

To the Editor.—*A 26-year-old white woman, para 1, grava 2, on Jan. 8, 1955, was about six weeks' pregnant. She and her husband were both Rh negative. She had had no blood transfusions. Her first baby was perfectly normal. On Aug. 18, 1955, she delivered a full-term baby who appeared normal except for a sallow color to its skin. In less than 12 hours this baby was severely jaundiced. A blood cell count revealed 1,400,000 red blood cells per cubic millimeter, and it was Rh positive. The baby's condition appeared critical. A pediatric consultant felt that the baby would not withstand an exchange transfusion but that cortisone and a simple transfusion might help. The baby died while the transfusion was being administered, 13 hours following delivery. How often would you expect Rh difficulty when both parents are Rh negative? What are their chances of trouble with future pregnancies?*

M.D.

Answer.—When both parents are Rh negative all the children will be Rh negative. In the case cited, therefore, one is dealing either with a child born out of wedlock or with a laboratory error in typing. Usually when both parents are Rh negative one may safely predict that the baby will not be erythroblastotic. In rare cases, however, erythroblastosis can result from A-B-O sensitization or sensitization to some other blood factor such as the Kell factor. The problem in the case described in the query can be resolved only by submitting blood specimens of the father, mother, and their living children to a physician specializing in the field of blood grouping. Since the blood of the erythroblastotic baby who died is no longer available, this may make it more difficult to arrive at an exact diagnosis. At the present stage of knowledge, if a viable erythroblastotic baby is treated promptly and adequately by exchange transfusion, the mortality rate will be less than 5%. For more details see Antenatal Rh Antibody Tests (editorial, *J. A. M. A.* **156**:772 [Oct. 23] 1954).

RENAL GLYCOSURIA

To the Editor:—*At a conference, renal glycosuria was discussed. In the case presented, all findings were negative, including repeated blood sugar tests. I maintained that this was not a disease entity and that it did not indicate that diabetes mellitus, renal disease, or other organic disease would necessarily result from the renal glycosuria. Exceptions were taken to my viewpoint. What are the current theories on this question?* *M.D., Michigan.*

Answer.—Renal glycosuria is defined as the excretion of glucose in the urine at "normal" levels of blood sugar. By "normal" some authorities mean the levels that obtain after an overnight fast, so that in renal glycosuria under these conditions glucose would be present in the urine at all times. Others extend the term renal glycosuria to the condition in which glucose appears in the urine after eating but at blood sugar levels that are appreciably below the average normal renal threshold. In both cases the glycosuria is owing to impairment of the tubular reabsorption of glucose (probably inadequacy of enzymatic phosphorylation), but this may exist and usually does in the absence of any demonstrable renal disease. There is no evidence of which this consultant is aware, despite occasional statements to the contrary, that renal glycosuria leads to renal damage, diabetes mellitus, or any other organic disease. There are cases of true diabetes mellitus with a low renal threshold for glucose. The diagnosis of renal glycosuria should not be made without obtaining simultaneous blood and urine specimens in the course of a standard three-hour glucose tolerance test.

OCCLUSION OF INFERIOR VENA CAVA

To the Editor:—*What are the effects of both sudden and gradual complete occlusions of the inferior vena cava between the renal veins and the hepatic veins? Will ascites result?* *Fred W. Whitehouse, M.D., Boston.*

Answer.—There is little knowledge of this particular lesion in the human being. The results from sudden occlusion after ligation in trauma or cancer operations have been, by and large, universally fatal; however, it may be entirely possible that the associated disease may have contributed greatly to these results. The effects of both sudden and complete occlusion of the inferior vena cava between the renal and hepatic veins are well known in the dog, cat, rabbit, and monkey. Death from shock and renal damage occurs after a few hours in almost all animals following complete ligation. Gradual complete occlusions at this level are tolerated very well because of the development of collaterals. Ascites does not develop. Sudden occlusion of the vena cava above the hepatic veins causes death in laboratory animals; however, again gradual occlusion is tolerated well and is associated with ascites. Occlusions of any degree below the renal veins are tolerated in the laboratory animal and in man. Ascites does not occur.

GOUT AND RHEUMATOID ARTHRITIS

To the Editor:—*What are the possibilities of gout and rheumatoid arthritis being present in the same patient at the same time? A 40-year-old male patient continues to be very uncomfortable in spite of the blood uric acid level being reduced to normal with the use of colchicine, Benimid, and Meticorten. The joints most severely involved are the wrists, fingers, ankles, and toes. About the only abnormal finding at present is an elevated blood sedimentation rate.*

Willard W. Van Graafeiland, M.D., Rochester, N. Y.

Answer.—It is possible, but rare, for gout and rheumatoid arthritis to be present in the same patient at the same time. However, it is important to keep in mind that episodic rheumatoid arthritis and polyarticular gout often are confused. The successful reduction of blood uric acid to normal values does not necessarily eliminate the discomfort. The high blood level of uric acid is not the only criterion for discomfort. The routine physical therapeutic procedures for soothing the joints may help in reducing the discomfort of the patient.

REPAIR OF HERNIA DURING PREGNANCY

To the Editor:—*A 27-year-old grava 4, para 3 woman had a repair of an inguinal hernia several years ago, and there has been a recurrence for which a truss was prescribed. The patient is now about 12 to 14 weeks' pregnant, and the hernia is getting larger and causes much discomfort. Is there anything that can be offered this woman in the way of comfort or cure?* *Lester Lando, M.D., Monsey, N. Y.*

Answer.—Despite the pregnancy, surgical repair of this hernia should be done. The risk of strangulation, plus the otherwise uncontrollable discomfort, outweigh what little hazard such operation presents to the pregnancy. The further anticipated increase in the abdominal tension should not jeopardize a properly executed repair.

BLOOD DYSCRASIAS IN RADIOLOGISTS

To the Editor:—*What are the dangers to and chances of radiologists developing blood dyscrasias? Can a radiologist doing an average amount of fluoroscopy and wearing apron and gloves be fairly certain of avoiding leukemia in any greater incidence than the average population?*

M.D., Connecticut.

Answer.—There is fairly good evidence that the incidence of leukemia is relatively high in radiologists (March, H. C.: Leukemia in Radiologists, *Radiology* 43:275-278, 1944), and there is little reason to doubt that excessive exposure to radiation can increase the leukemia rate. Fluoroscopy is one of the most hazardous of the radiologist's occupations, and there is no practical means of making it absolutely safe. With imperfect apparatus and an inexperienced operator, the body dose is apt to be high, even if gloves and an apron are worn. To assure a reasonable degree of safety, it is necessary to check the fluoroscope carefully for stray radiation, work with a small shutter opening, a low milliamperage, and a minimum observation time. In addition to technical precautions, it is important that the radiologist be experienced and that his eyes be well accommodated to the dark.

PARASYMPATHETIC ATONY OF BLADDER

To the Editor:—*Is there another drug that may be used orally in place of furmethide tablets for a parasympathetic stimulant for urinary bladder weakness as in poliomyelitis? If so, who is the manufacturer?* *E. S. King, M.D., Shelby, N. C.*

Answer.—Of the several parasympathetic stimulants used with atony of the urinary bladder, Urecholine chloride is most frequently employed. This drug was introduced by Merck & Company, Inc., Rahway, N. J., and is distributed by Sharp and Dohme, Division of Merck & Co., Inc., Philadelphia. Although such stimulants are sometimes accompanied by disagreeable sensations, such as flushing of the face, headache, and dizziness, no serious complications have been reported from their use. In cases of this kind, it would be well to exclude the possibility of any tissue obstruction at the bladder neck, which sometimes develops following parasympathetic atony.

CORTISONE AND SPONDYLITIS

To the Editor:—*Is cortisone of value in the treatment of hypertrophic spondylitis in a 47-year-old male?*

M.D., New York.

Answer.—The majority of patients who have hypertrophic spondylitis (osteoarthritis of the spine) do not derive sufficient benefit from the use of cortisone to justify the risk and expense of its prolonged systemic administration. Occasionally the brief use of cortisone has served to afford some relief for acute exacerbations of this condition; nevertheless, such exacerbations as well as the more chronic symptoms generally are best treated by other measures, such as physical therapy, salicylates, increased rest, limited use of the back, the use of a firm bed; and sometimes a suitable brace for the spine.

SECTION ON GASTROENTEROLOGY
AND PROCTOLOGY

BILLINGS GOLD MEDAL

Esophagitis

A Common Condition Frequently Overlooked

Herbert W. Schmidt, M.D.
Section of Medicine

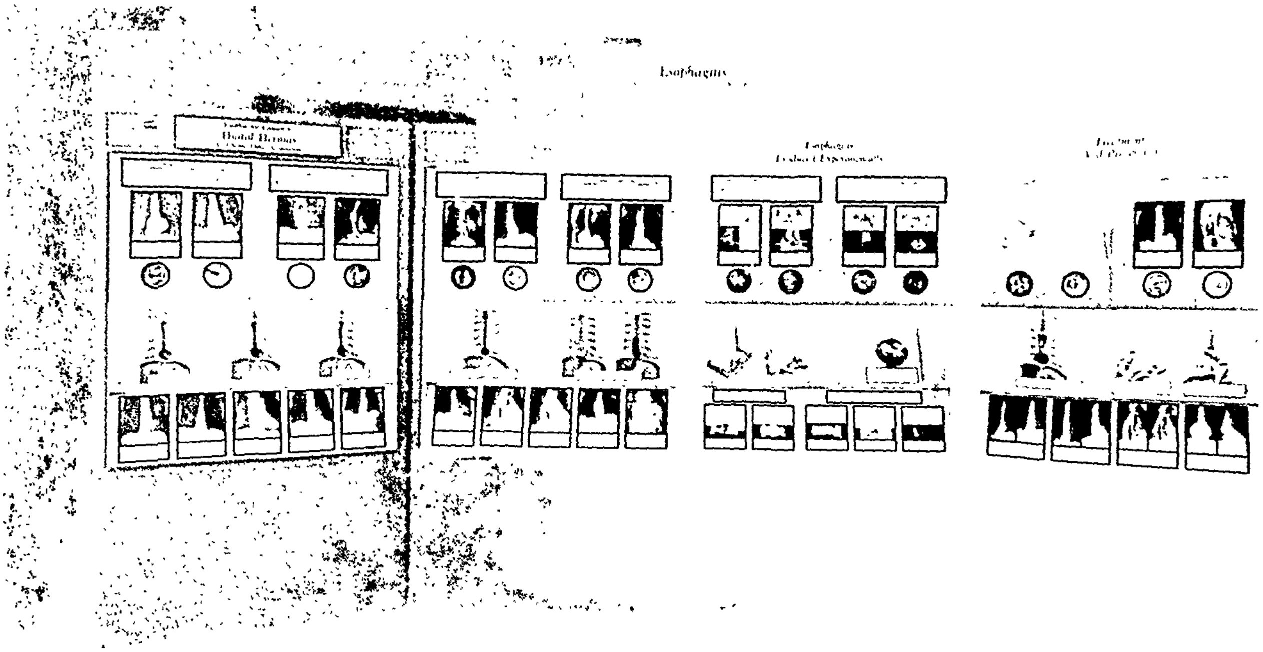
Arthur M. Olsen, M.D.
Section of Medicine

F. H. Ellis, Jr. M.D.
Section of General Surgery

John H. Grindlay, M.D.
Section of Surgical Research

Arthur H. Bulbulian, M.S.
Museum of Hygiene and Medicine

Mayo Clinic and Mayo Foundation



Esophagitis is a relatively common disorder that is frequently overlooked. It usually occurs in association with conditions that produce or permit regurgitation of gastric contents. Thus, the causes of vomiting may be etiologic factors in the production of esophagitis.

Incompetence of the sphincteric mechanism at the cardia is also a very important factor. Such cardial incompetence occurs frequently with esophageal hiatal hernia and as a complication of surgical procedures that destroy the cardial mechanism.

This exhibit presents (1) typical case reports illustrating various conditions producing esophagitis, (2) pathologic specimens, photomicrographs and esophagoscopic photographs of esophagitis in man, (3) methods for the experimental production of esophagitis and surgical technics designed to prevent esophagitis and (4) various methods of treating esophagitis and its complications.

This is one of the many exhibits shown at the June, 1955, meeting of the American Medical Association and which have been collected for pictorial presentation in the "A.M.A. Scientific Exhibits 1955" This book is published by Grune & Stratton, Inc., N. Y. These exhibits are published in their entirety and are not abstracts.

Esophagitis Caused by Esophageal Hiatal Hernia in Adults

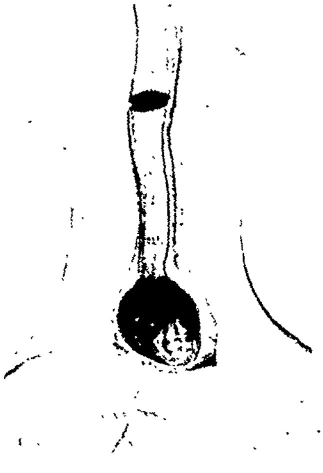
Displacement of the esophagogastric junction into the thorax, causes incompetent cardia allowing regurgitation of gastric secretions. Hydrochloric acid and digestive enzymes are responsible for peptic esophagitis. Ulcerations of the esophageal mucosa will develop and heal and eventually cicatricial changes will occur. The esophagus may shorten and in many cases stricture may be the end result.

Hiatal Hernia With Ulcerative Esophagitis

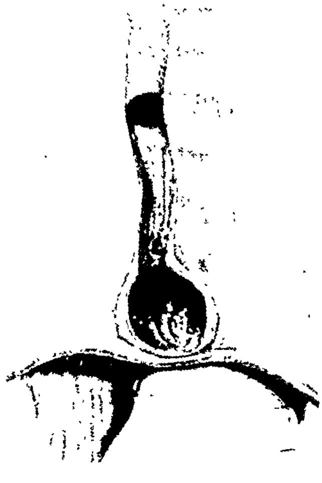
A 60-year-old woman with hiatal hernia, duodenal ulcer, gallstones and long-standing dyspepsia. Esophagoscopy disclosed severe ulcerative esophagitis. Hiatal hernia repaired and stomach brought below diaphragm.

Healed Esophagitis With Cicatrization 3 Years Later

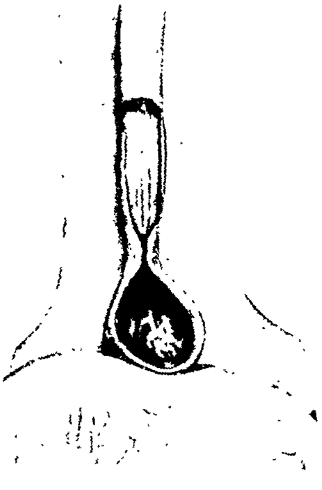
Same patient returned nearly 3 years later with complaint of dysphagia of 1 year's duration. Esophagitis had healed with marked shortening of the esophagus, stricture formation and resultant intrathoracic stomach.



Sliding Type of Hiatal Hernia



Incompetence of Cardia Leads to Esophagitis



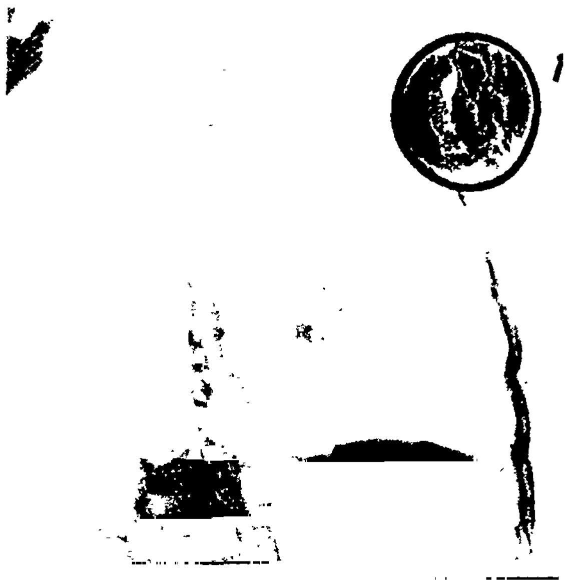
Healing of Esophagitis Produces Stricture

Esophagitis Caused by Incompetent Cardia in Children

Regurgitant esophagitis may occur in newborn infants. Incompetence of the cardia seems to be responsible. Some children are born with congenital hiatal hernia; others are born with congenital short esophagus. In either case, cicatricial changes are common and serious dysphagia is present. Early recognition and proper treatment of incompetence of the cardia in children are most important.

Congenital Short Esophagus

A congenital short esophagus with stricture at the esophagogastric junction in a child 1 year of age who had had difficulty in swallowing since birth.

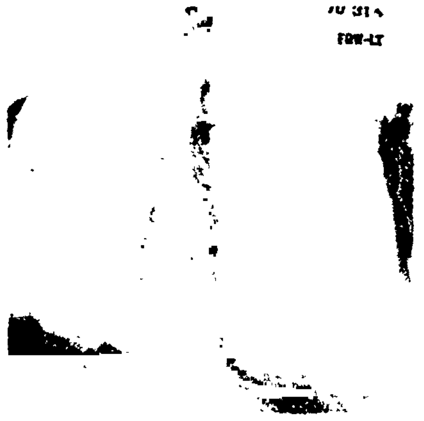


Esophagitis and Stricture

A 5-year-old girl was found to have a short esophagus, esophagitis and stricture. History of regurgitation when lying down since early infancy. Patient was observed for 5 years and the esophagus was dilated 30 times.

Esophageal Ulcer and Stricture Secondary to Cardiospasm

A 59-year-old man had cardiospasm and esophagitis which progressed to a short esophagus with ulceration and stricture at the esophagogastric junction.



Esophageal Ulcer Secondary to Diaphragmatic Hernia

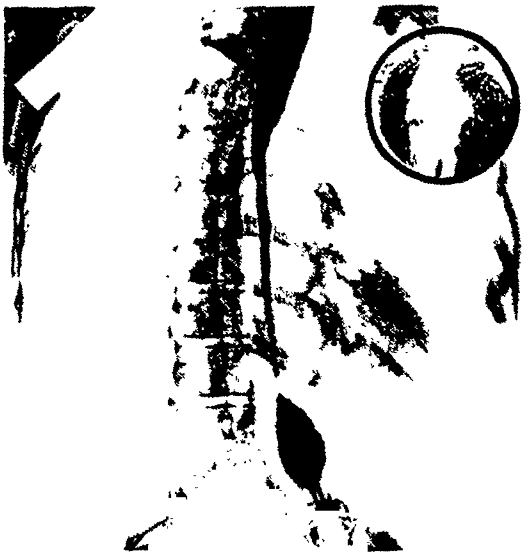
Esophageal hiatal hernia with associated incompetency at the cardia allowed gastric regurgitation into the distal esophagus and produced a deep ulcer. The ulcer eroded into an artery and produced fatal hemorrhage.

Esophagitis and Carcinoma

This 63-year-old woman had symptoms of regurgitation for 6 years and dysphagia for 4 years. Carcinoma developed in a hiatal hernia and the lesion proved to be inoperable at exploration.

Esophagitis Caused by Vomiting

Prolonged vomiting may produce peptic esophagitis with ulceration. Inflammation is diffuse throughout the esophagus. Resulting strictures are frequently very long and the cicatricial changes often produce a short-esophagus type of hiatal hernia. Vomiting of pregnancy, vomiting from pyloric or intestinal obstruction and post-operative regurgitation are frequent causes of ulcerative esophagitis.

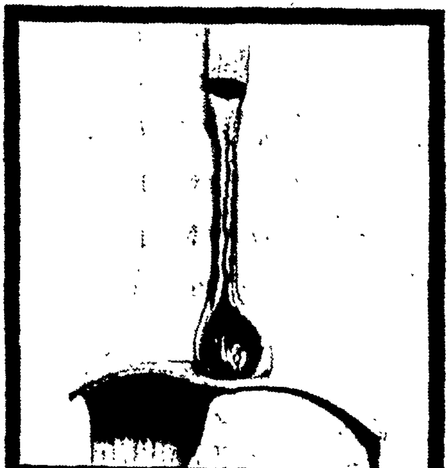


Esophagitis Caused by Vomiting of Pregnancy

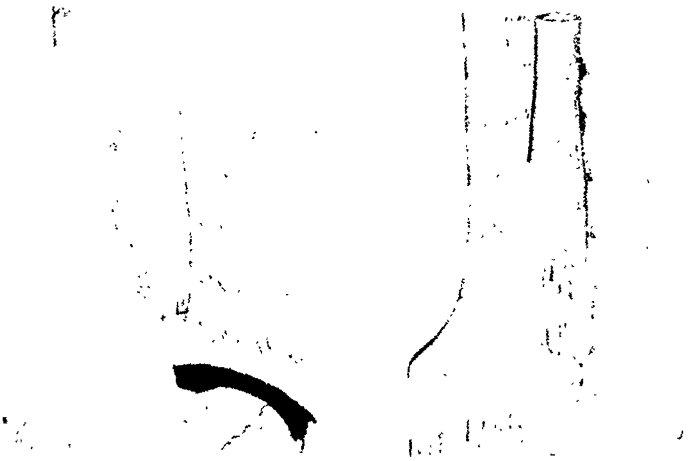
A 29-year-old woman experienced severe prolonged vomiting associated with toxemia of pregnancy and jaundice. Severe esophagitis and an elongated esophageal stricture with intrathoracic stomach developed.

Esophagitis Caused by Postoperative Vomiting

A 73-year-old man had obstructing carcinoma of the colon. Much vomiting and prolonged nasal tube drainage before operation. Severe ulcerative esophagitis and an elongated stricture with intrathoracic stomach developed.



Vomiting Produces Diffuse Esophagitis and a Long Stricture



Cardioplasty for Cardiospasm (Wendel technic) Relieves Obstruction but Renders the Cardia Incompetent: Regurgitation Causes Esophagitis and Ulceration

Esophagitis Resulting From Operations Involving the Cardia

Operative procedures which destroy or bypass the cardiac mechanism result in regurgitation of gastric secretion. Esophagitis is a frequent sequela of procedures such as esophagogastrectomy and cardioplasty. Alkaline esophagitis may develop after total gastrectomy with either esophagoduodenostomy or esophagojejunostomy.

Esophagitis Following Esophagogastrectomy for Carcinoma

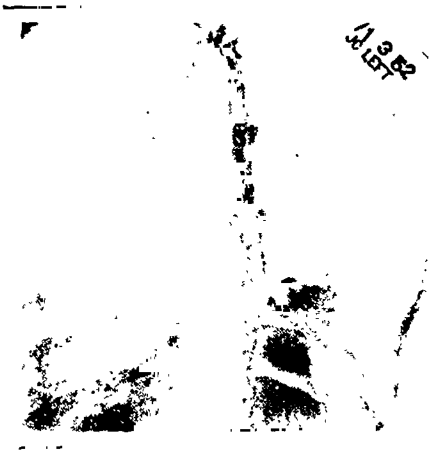
A 34-year-old man. Dysphagia, epigastric burning and regurgitation developed 4 months after esophagogastrectomy for carcinoma of the esophagus. Severe esophagitis and stricture resulted 1 year later.

Esophagitis Following Cardioplasty for Cardiospasm

A 34-year-old man. Massive hemorrhage and anemia following cardioplasty (Wendel) performed elsewhere 10 months previously. Esophagoscopy revealed ulcerative esophagitis.

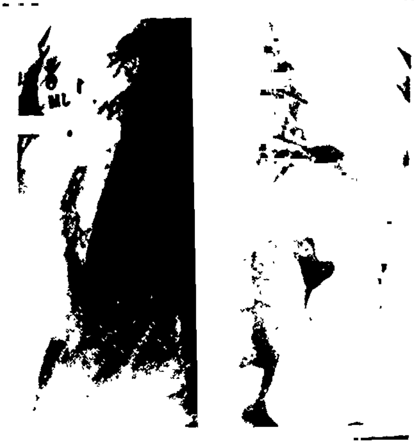
Esophagitis Secondary to Duodenal Ulcer

A 58-year-old man with hiatal hernia, obstructing duodenal ulcer and ulcerative esophagitis. Stricture of esophagus over period of 3 years.



Esophagitis Following Esophagogastrostomy

Hemorrhagic esophagitis with stricture in a 46-year-old man 3½ years following esophagogastrostomy (Grondahl) for cardiospasm.



Esophagitis Following Cardioplasty

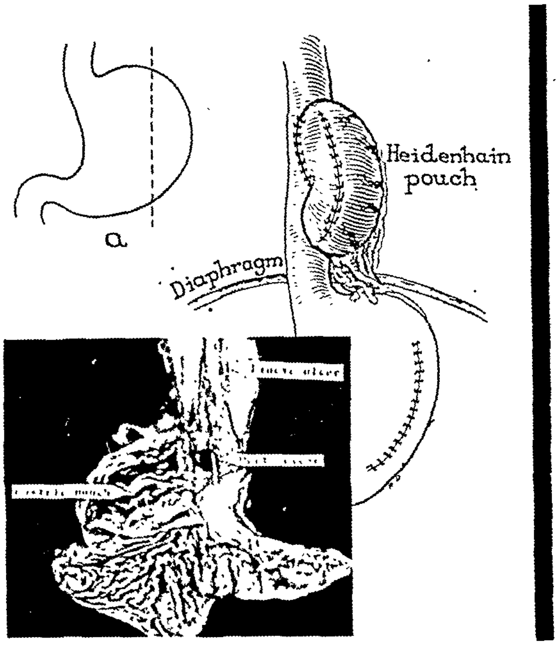
A 44-year-old woman with esophagitis following cardioplasty (Wendel) for cardiospasm. Esophagogastrectomy subsequently elsewhere, with fatal esophageal hemorrhage.

Esophagitis Produced Experimentally

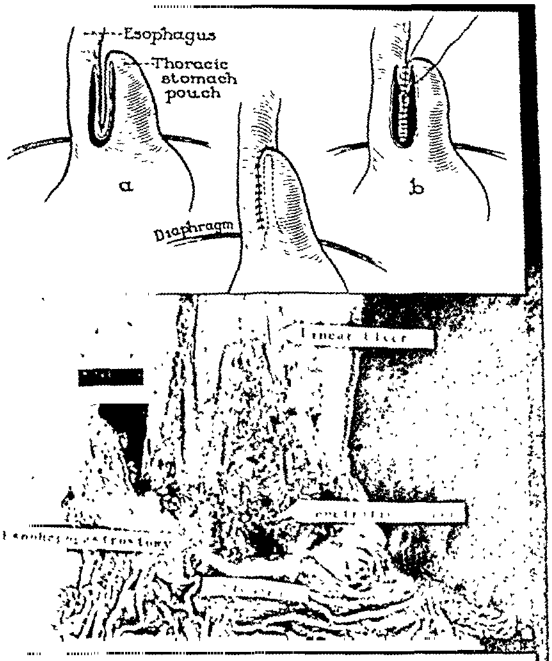
Production of Esophagitis by Direct Exposure of Esophagus to Acid Gastric Secretions

Work done in collaboration with H. R. Ripley, Fellow, Mayo Foundation

Experimental esophagitis was produced in dogs by exposing the esophagus to the acid gastric secretions. In one method, a portion of the stomach was transferred to the esophagus and its secretions made to drain into the esophagus (Heidenhain pouch). In another method, the cardial mechanism was made inactive by esophagogastrostomy, which permitted regurgitation of gastric contents.



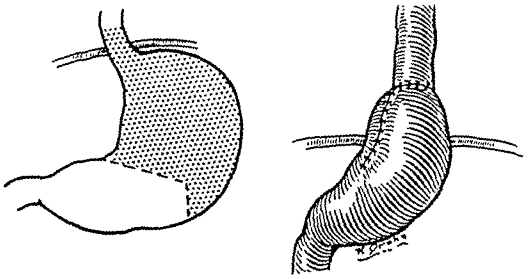
Experimental implantation of a Heidenhain pouch into the esophagus of dogs caused severe ulcerative esophagitis.



Severe esophagitis was also produced following experimental esophagogastrostomy of the Grondahl type.

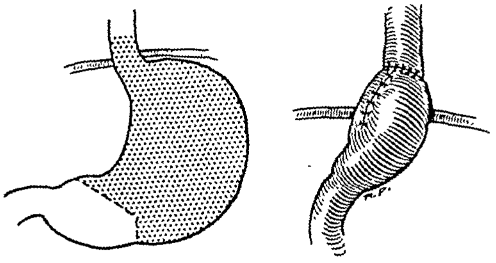
Experimental Esophagogastrectomy

Work done in collaboration with R. T. Hood, Jr., Fellow, Mayo Foundation



Esophagitis Develops

Esophagitis develops in experimental esophagogastrectomy in dogs if some acid-secreting portion of the stomach is allowed to remain.



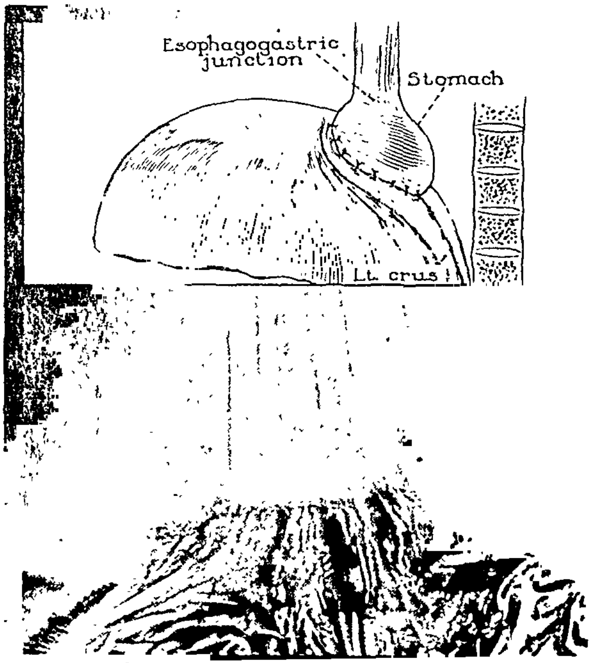
Esophagitis Rarely Develops

Esophagitis rarely develops if all the acid-secreting portion of the stomach is resected and the esophagus is anastomosed to the antrum.

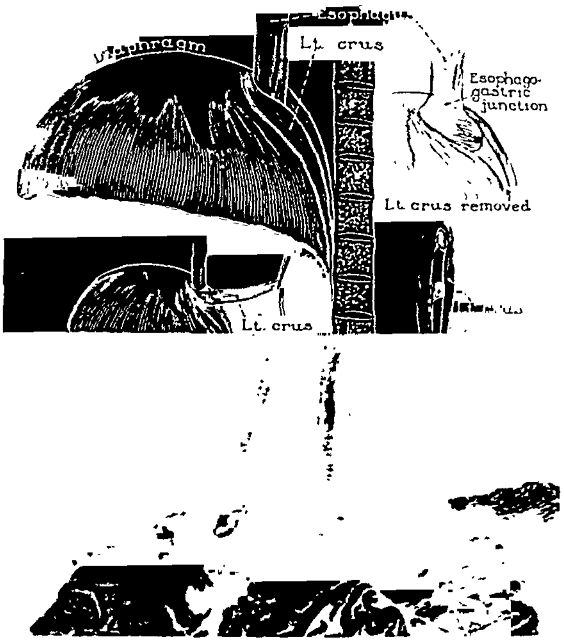
Production of Esophagitis by Interference With the Mechanism of the Diaphragm

Work done in collaboration with V. J. Giuseffi, Jr., Fellow, Mayo Foundation

Intact diaphragm helps maintain competence of the cardia. Incompetence of cardia was produced by two methods. In one set of experiments, competence of cardia was destroyed by production of esophageal hiatal hernia and in another set of experiments by removal of the left crus of the diaphragm. In both experiments, esophagitis developed in a large number of dogs due to regurgitation of acid gastric contents.



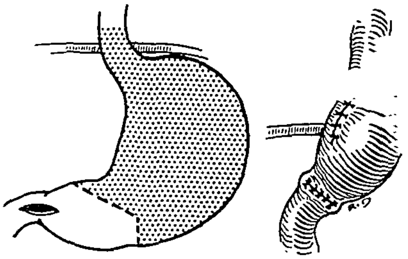
Canine esophagitis resulting from experimentally produced esophageal hiatal hernia showing the inflammatory reaction along the esophagogastric junction and ascending the esophagus in a typical linear pattern.



Canine esophagitis resulting from interference with the diaphragmatic pinchcock mechanism by surgical excision of the left crus of the diaphragm.

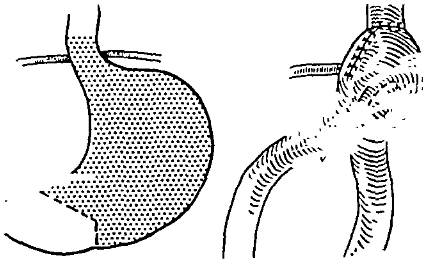
Types of Drainage Procedures in Conjunction With Esophagogastrectomy and Esophagoantrostomy

Work done in collaboration with H. W. Neuman, Fellow, Mayo Foundation



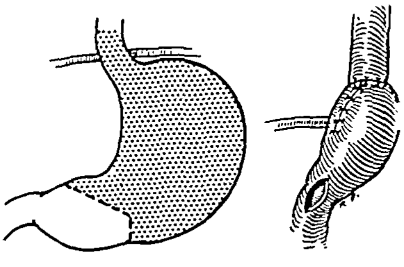
Heineke-Mikulicz Pyloroplasty

When a Heineke-Mikulicz pyloroplasty is used for drainage, alkaline regurgitation leads to ulcerative esophagitis.



Gastroenterostomy

When gastroenterostomy is used for drainage, alkaline regurgitation leads to ulcerative esophagitis.



Extramucosal Pyloromyotomy

When extramucosal pyloromyotomy is used for drainage, ulcerative esophagitis due to alkaline regurgitation is minimized.

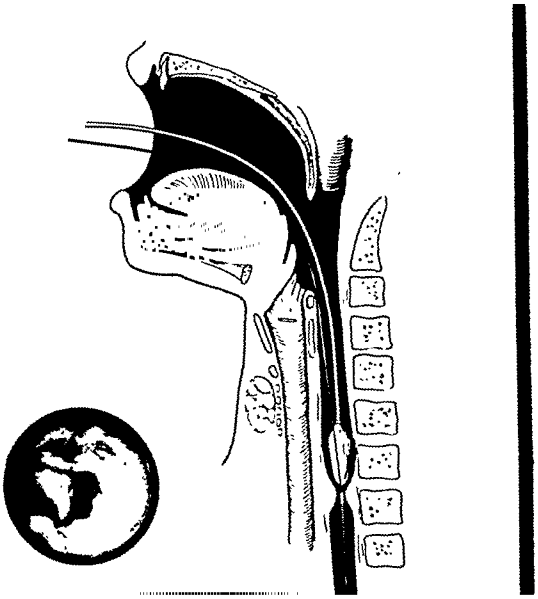
Treatment and Prevention

Medical Treatment of Esophagitis and Its Complications

Medical treatment of esophagitis and its complications should include: (1) ulcer diet, (2) prevention of regurgitation by (a) elevation of head of bed and (b) reduction of pressure within the abdomen by weight reduction and avoidance of tight garments, (3) neutralization of gastric acids by regular use of antacids and (4) dilation of esophageal strictures by mechanical means.

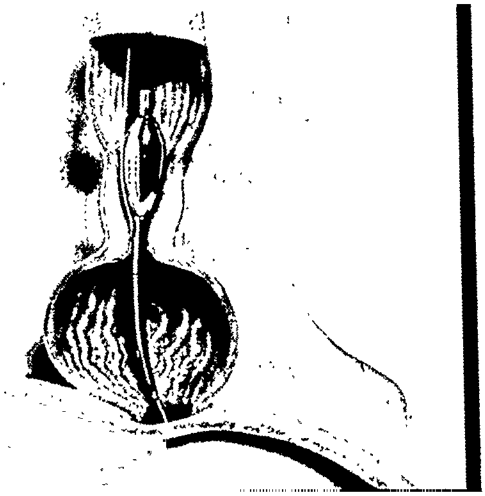
Thread Serves as a Guide

This method of dilation utilizes a previously swallowed thread. Fifteen feet of thread is swallowed at the rate of 12 inches per hour and is engaged in the small bowel.



Dilating the Stricture

Passage of the wire spiral and sounds over the thread is accomplished with the aid of a flexible whalebone staff. Graduated sounds up to 45 French are passed through the stricture.



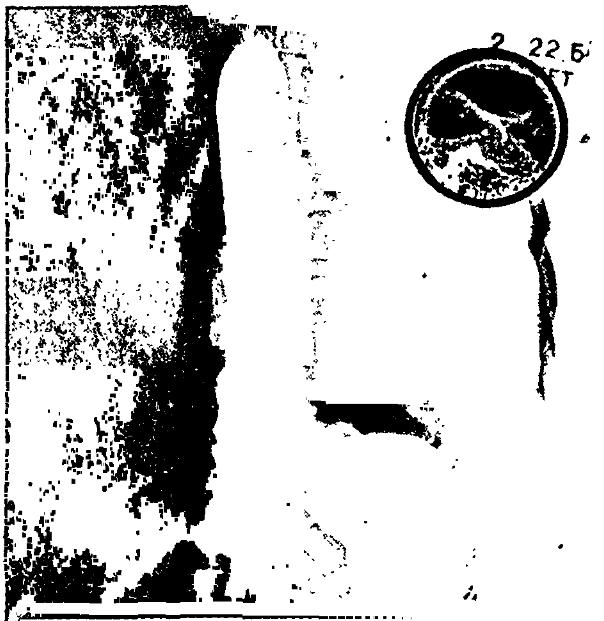
Esophageal Stricture Being Dilated
(See photographs above)

Esophageal Stricture
Successfully Treated by Dilation

A 60-year-old man. Stricture of esophagus caused by regurgitation following operation for carcinoma of the colon (left). The stricture was treated successfully by means of a series of dilations (right).

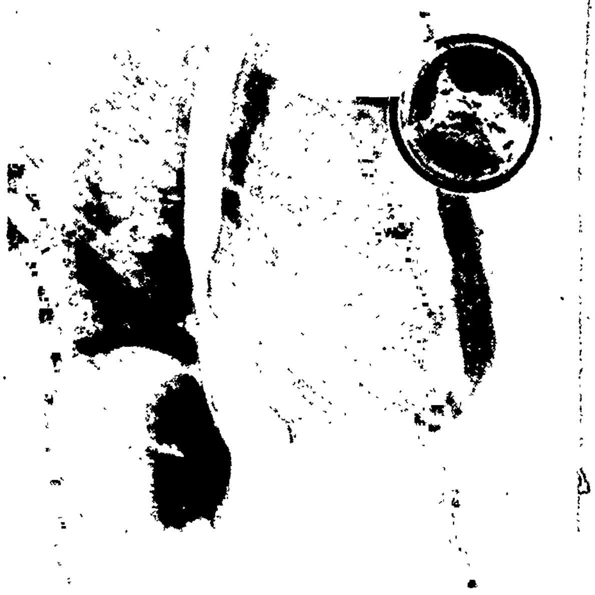
Surgical Treatment of Esophagitis and Its Complications

Esophagitis caused by hiatal hernia is best treated by reduction of the hernia. Complications of esophagitis may be successfully treated by (1) extensive esophagogastrectomy and pyloromyotomy, (2) Roux-Y esophagojejunostomy. Subtotal gastrectomy, transplantation of esophagogastric junction to dome of diaphragm and interposition of a limb of jejunum between stomach and esophagus have also been used.



Esophageal Stricture Following Esophagogastrectomy

Patient treated elsewhere 12 months previously by resection of the cardia and esophagogastrostomy for cardiospasm. Severe ulcerative esophagitis with stricture developed 8 months later.



Condition Relieved Surgically

Extensive esophagogastrectomy with removal of all the stomach down to the antrum and an extramucosal pyloromyotomy. One year later, patient had gained 40 pounds and was asymptomatic.

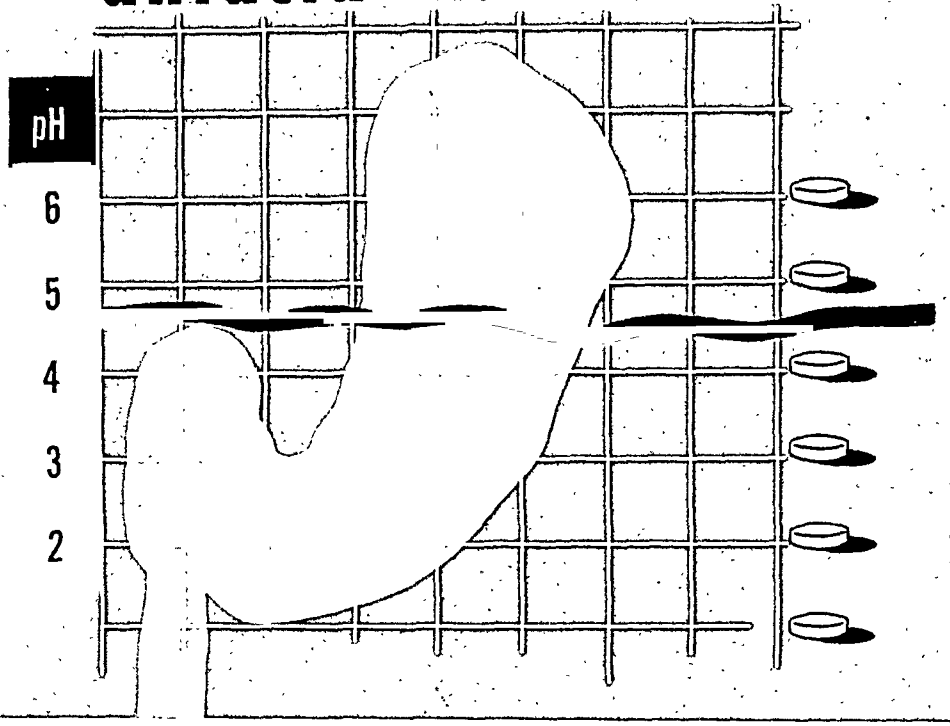
Esophageal Stricture Treated by Esophagojejunostomy

A 47-year-old woman. Short-esophagus diaphragmatic hernia with ulceration and stricture (left). Treated by limited esophagogastric resection and esophagojejunostomy (Roux-Y). Pain and dysphagia relieved 6 months later (right).

Transplantation of Esophagogastric Junction to the Dome of the Diaphragm

A 60-year-old woman. Diaphragmatic hernia of 11 years' duration. Despite medical treatment, short esophagus developed with bleeding (left). Treated by paralysis of the left diaphragm and transplantation of esophagogastric junction to dome of diaphragm. No further bleeding 2 years later (right).

antacid maintenance



Healing of peptic ulcer must be followed by effective antacid maintenance therapy to prevent recurrence. This can be achieved conveniently with agreeable, easy-to-carry Creamalin Tablets and Capsules.

Through sustained reduction of gastric acidity without the danger of alkalosis, nonabsorbable Creamalin provides reliable and pleasant antacid control for the ambulatory ulcer patient.

ALUMINUM HYDROXIDE GEL

Creamalin®

TABLETS: Bottles of 50 and 200
CAPSULES: Bottles of 100
LIQUID: Bottles of 8 and 16 fl. oz.

CREAMALIN, trademark reg. U. S. Pat. Off.

Winthrop-Stearns INC.
NEW YORK 18, N. Y. WINDSOR, ONT.

Doctor, are you going to the clinical session in Boston? You will want to attend the gala concert of the Boston Symphony Orchestra on Thursday evening, December 1. Obtain your tickets when you register. Compliments of Winthrop.

[illegible] Library
[illegible] Medical College
32691

Free from irritating hydrocarbons.
Helps keep babies' skin soft, smooth, supple.

Johnson & Johnson